AUDIOMEDIA

THE WORLD'S LEADING PROFESSIONAL AUDIO TECHNOLOGY MAGAZINE

THE Manual

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The Human Touch

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Using a custom designed, hand wound, transformer this is the world's first pencil mic with a large scale, ultra high performance, transformer.
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"The killer capsule is the modified cardioid... an *incredibly smooth, natural sound*"

"... *incredible definition* **...this is the best (sE) mic yet."**

Resolution, Jon Thornton
May/June 2011

"...*perfect* **mechanical engineering"**

"The RN17 gives the user a *clean sound* **in a way that is almost shocking... when you work these mics with a good EQ, you get to hear just how** *pure* **the output really is"**

"...*remarkable*"

Audio Media, Andrew Graeme
July 2011

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leader

Knowledge, experience, and wisdom... they're all slightly different, but definitely related. Experience (measured in Kilowhats) and knowledge (milliwhys) combine to form tiny nuggets of wisdom (e x k = w). Those nuggets are excellent for all sorts of things, but unfortunately cannot be exchanged for anything at Waitrose, which never fails to surprise me.

We've found, while trying to collect a staggering 0.25Kw of knowledge from around the industry, that it's not easy taking tips from a head and putting them into words. Things you know or can do suddenly run and hide when you try and grab them. It's a bit like the moment somebody stands behind you while you're at a computer... you immediately lose the ability to type, use a mouse, or find menu items.

That said, we have managed to eek 250 tips from those who were kind enough to offer them – including a few special ones you may have missed while perusing past issues of *Audio Media*. I'd like to relate tips 249 and 250 here...

One we could not find a category for, but which fits in fine just here was from Henry Bourne who is the Product Manager at Calrec Audio and a visiting lecturer at LIPA; though I suspect he sometimes sits atop mountains and just thinks for a bit:

"Use advice, as the word suggests, as advice – not as rules to blindly follow. Use your intelligence, your own senses (including the all important common one) and your own judgement to get the result you want. Unfortunately the audio world, particularly recording and mixing sessions, are notoriously bad for people taking advice word for word and not really thinking about what they are actually doing. Just because a certain technique worked for [insert engineer here] in their studio at a specific time with the right talent, does not guarantee it will work for you. A genuine understanding of what you are doing, why you are doing it, and the reason behind it is much more important than blindly regurgitating other people's views. Of course, this means not simply doing what you've just read because I've told you that it's a good idea… You've got to make up your own mind!"

Finally, tip 250 perfectly highlights the very moment when only wisdom will do:

"How many times has everything been hooked up, turned on, lights blinking and meters flailing, and you STILL can't hear anything through the monitors? How many times, I ask you? ...I only wish I had a tip I could give you." (David Mathew, Audio Precision).

Paul Mac, *Editor*

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AUDIOMEDIA

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*Within Broadcast & Production

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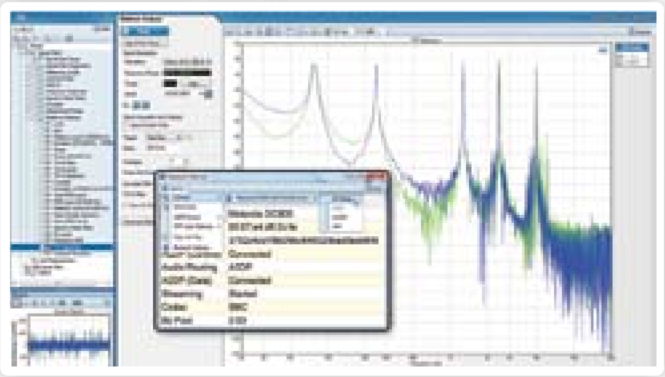
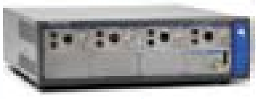


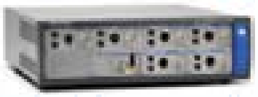
Recommended models & options

(The APx *Bluetooth* option is compatible with APx520, 521, 525 and 585)



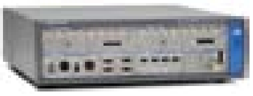
Handsfree & headsets

APx's quasi-anechoic acoustic measurements and built-in SCO and AVRCP commands are ideal for handsfree devices and wireless speakers.



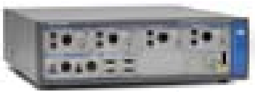
Automotive audio

2 or 4 channels of high performance analog with 300 Vrms max input (bal) plus *Bluetooth* is ideal for automotive head units.



A/V Receivers & *Bluetooth* chips

Ultimate connectivity. Test *Bluetooth*-to-HDMI, *Bluetooth*-to-surround speaker outputs, *Bluetooth*-to-S/PDIF, *Bluetooth*-to-I^2S. Ideal for multichannel receivers or *Bluetooth* chips.



Smartphones

APx switches between A2DP and HFP seamlessly and supports streaming over an SCO or .wav file playback for testing smartphones.

Learn more about characterizing audio over *Bluetooth* wireless technology at ap.com/bluetooth

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Audio precision

THE RECOGNIZED STANDARD IN AUDIO TEST

the recording room

It's here you do your best microphone work – you've got to think on your feet and get the best out of the talent. Mic technique and tips are the staple in the **Recording Room**, with added frills.

Mic Monsters

Mics go wrong – keep an ear out for crackles or hiss, "frying eggs" is a common phrase for a mic that's been on for too long and has decided to give up on you.

Alan Branch, Producer/Engineer and Audio Media Contributor

Robust Recordings

Omni-directional microphones are less sensitive to wind and shock than other types.

Eddy B. Brixen, Audio Specialist, DPA Microphones

Mic Placement

if you remember anything, remember MIC PLACEMENT. Experiment with moving the mic around the instrument, try using one ear by turning it toward the instrument and moving around till you find a sweet spot. Sounds obvious I know, but I never cease to be amazed at poor recordings because someone's placed a mic in a less than optimum position, such as next to a rattling drum or air con unit!

Alan Branch, Producer/Engineer and Audio Media Contributor

Be The Best

To quote Frank Zappa, "we'll fix it in the shrink wrap". In just seven words he exposed the attitude shared by many in our industry who take little responsibility for the quality of their product, expecting someone further down the production chain to correct any inadequacies and errors in their work. Placed your microphones badly? Don't worry... someone else will bring the voices to the fore. Gain structure all wrong? Don't worry... someone else will eliminate the clipping that results. Shooting a period drama underneath the flightpath of a major international airport? Don't worry... someone else will remove the scream of four Pratt & Whitney power plants hauling 400 tonnes of Boeing into the skies. So here's a thought... why don't we re-learn the audio disciplines of yesteryear and attempt to get it right first time? Tight deadlines and even tighter budgets may make this difficult, but there's a lot of satisfaction to be had in working to overcoming the difficulties that we face. Then, when accidents happen or problems simply can't be avoided, the restoration engineers can shine.

Gordon Reid, Cedar Audio

Mic Adventures

Sometimes it is a good idea to reconsider good old habits. Are they good or are they just old? Choosing the right microphones for the job sometimes needs some rethinking. Instead of picking the usual one, shake the bag and see what other possible solutions you have.

Eddy B. Brixen, Audio Specialist, DPA Microphones

Inside-Out

Make sure your mic is the right way around! I got asked by a producer once who was working in a studio next door why their vocal sounded so funny, was it the room or the compression? I knew straight away when I heard it, and helped the engineer avoid embarrassment by pretending to adjust the mic, whereas in fact I just turned it round the right way.

Alan Branch, Producer/Engineer and Audio Media Contributor

True

Sorry, great microphones won't make lousy players or poor instruments sound good.

David Mathew, Audio Precision

Phantom Ribbon Killer?

If everything is correctly wired and phantom power is uniformly applied to pins 2 and 3, then a ribbon has no reason to move at all. However, if you plug your ribbon mic into the desk via a jack or TT socket and phantom power is on, for a just a split second, 48 volts is applied first to one pole of the ribbon and then, as the wipers in the socket pass from the tip to the sleeve, to the other pole, making it jump first one way, then the other. The output transformer limits this effect, but these jumps can stretch and therefore damage the ribbon. The same thing happens if there is a momentary disconnect on either pins 2 or 3 caused, for example, by a loose or dirty connection. So if you do inadvertently switch on phantom power whilst using a ribbon, it is best to just switch it off again. Do not plug or unplug the mic whilst phantom is on, as pins 2 and 3 are unlikely to make and break contact at exactly the same time.

Andrew Graeme, The Byre Recording Studios, Microphones 2010

Drums: Overheads And Ambience

Normally dynamic mics are used throughout the kit because of the high SPL – apart from overheads, which need condensers or ribbons to pick up the high frequencies of cymbals. Overhead mics can be positioned in a variety of ways and placements depending on if you want more cymbals than toms, but an X-Y set-up is a good start – that's two cardioid mics placed facing each other at right angles, so the heads are nearly toughing each other. This keeps phase problems down and is simple to adjust on one stereo mic stand for trying different heights. Don't forget a room mic or two, these can be any type of mic, I've even used talk back mics (really nice as it can have some kind of hard compression built in) dynamics, condensers, ribbons, different distances from the kit and positioning in different directions. I often put lots up and delete the ones I don't like later. With some nice EQ and compression the room mics can add extreme power to your drum sound.

Alan Branch, Producer/Engineer and Audio Media Contributor

Channel Strip Options

Record the direct out of the mic pre before processing AND the output after processing. If you don't have the sound dialled in the way you want it, but have the perfect take, you can still go back to the unprocessed track.

Joel Silverman, MD, Millennia Music & Media Systems

TECHNOLOGY FOCUS

Neumann's KH 120 studio monitor is designed for use as a near-field loudspeaker or rear loudspeaker in larger multi-channel systems. It has a Mathematically Modeled Dispersion waveguide that provides a smoother off-axis response and is more forgiving of diverse acoustical environments.

A subwoofer, such as the Neumann KH 810, with its 7.1 High Definition Bass Manager, can be added to deepen the low-frequency response to 18 Hz and increase the system's maximum output level. The 7.1 High Definition Bass Manager is compatible with all standard consumer formats from mono through to the latest 7.1 HD systems. Eight channels of analogue ensures flexible interconnectivity for modern studios.
www.neumann.com

Hold On To Analogue

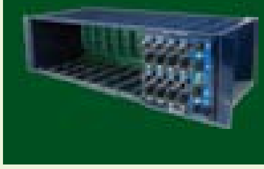
A new line of business has appeared in recording voice prompts, the annoying but perhaps necessary instructions on helplines and the like, which have to be good quality to begin with before the go through all the processing in phone networks. Silk has stuck with old analogue technology to get good sounds on voices, with a range of SSL compressors and Focusrite mic amps. "These are the things to hang on to if they really do add something to what's going on," Weston says.

Robbie Weston, founder of Silk Sound
Audio Media, December 2009

TECHNOLOGY FOCUS

The Radial Workhorse is a modular rack and mixer that combines the popular 500 series platform with a flexible patching system that makes it possible to create your ideal channel strip. Equipped to handle up to eight modules, it lets you mix and match pre-amps, EQs and compressors and bring them all together in one rack. Individual modules can be accessed on the rear panel or bussed to the built-in 8x2 summing mixer for left-right signal panning, level control and muting.

The Workhorse is backwards compatible with older API Lunchbox designs and introduces a built-in summing mixer, Omniport and headphone amp. Multiple Workhorses may be ganged together using the expansion buss to build 16, 24 or even 32 channel systems.



www.radialeng.com

Shouty Twisty

To achieve the same sound that John Lennon stumbled upon when belting out vocals at full volume to Twist and Shout, start out six or more inches away from the mic and move in until the right sound is achieved. Lennon was so close to the microphone that his mouth was touching the capsule grille. This larger than life vocal sound was captured through the proximity effect of being right on top of the mic. In achieving this larger than life sound you can sometimes run into sibilance problems (accentuation of the 's' sound). As you get closer to most mic capsules, the proximity effect intensifies the high and low frequencies. Using a quality de-esser to minimise sibilance thus protecting the clarity of the recoded signal is recommended.

However, when using Blue's dual backplate B6 capsule found in our Kiwi microphone – designed to handle loud SPL (sound pressure level) – as you get closer to the capsule the sound actually compresses and gives you a more even presentation of the mid range; as you move farther away the sound maintains presence. This capsule handles up-close, loud performances without overloading the mic to create a transparent image.

Skipper Wise, Founder of Blue Microphones

Standfirst

Watch for mic stands moving or touching a drum kit, these will only ruin an otherwise great recording, and sometimes you won't get a second chance.

Alan Branch, Producer/Engineer and Audio Media Contributor

The Great Fig.8

The figure-of-eight microphone pattern is great. Not only does it give you two hot sides when you need them, but the off-axis rejection is astonishing. Use figure-of-eights as drum overheads, aiming the off-axis to reject snare. Or use one as a vocal mic for the singer who wants foldback on speakers, not headphones. Point the speakers at the off-axis.

David Mathew, Audio Precision

Weirdly Wired

Check for crossed connections. It's an easy mistake to make, and the symptoms can be really crazy.

David Mathew, Audio Precision

Far Out Man

When reading the frequency response of a cardioid microphone, notice the distance at which the data has been obtained; some microphones have a flat response in the near field, others in the far field.

Eddy B. Brixen, Audio Specialist, DPA Microphones

Always On

Record everything, usually the takes when the player or singer doesn't know it's recording can often be the best, and the first takes can often have the most vibe before they get bored of the song.

Alan Branch, Producer/Engineer and Audio Media Contributor

Percussive Beginnings

A good start for miking a drum set:

The first step is to align the overheads with the kick and snare mics, and once this is established all other mics can be referenced from these three points. Using the phase switch on your pre-amp, find the position where you lose low end the most. Move the mics until you have maximum loss of low end (out of phase), then switch the phase switch back the other way and now you will have maximum gain of low end (in phase). It is usually quicker and easier to hear the low end loss rather than the low end peak.

Mike Terry, Grammy nominated Producer, Engineer, and Sound Designer c/o Lauten Audio

Instrument Pre Impedance

Guitarists often complain about the sound of the piezo pickup. And for good reason. Most of the time, these sound peaky and squawk! The question is why? Well, it turns out that one major reason for this is the input impedance. Piezo transducers sound best when they are connected to a high impedance load of 4meg-ohms or more. The challenge is that as you increase the impedance, the more noise leaks into the circuit!

Turns out, most manufacturers use a 1MBΩ input following Leo Fender's original tube amp designs. But this too is a bit of a fallacy. When a guitar pickup is connected to a tube amp, it creates a circuit. And a tube amp circuit reacts very differently than a solid state one. This is the primary reason most guitarists hate buffers. Most buffers are designed with 1 meg-ohm inputs. Lowering the impedance by increasing the load helps the guitar sound smoother and more natural.

Peter Janis, President, Radial Engineering Ltd.

Limit Your Levels

Digital recording levels are completely different from analogue recording levels. With analogue recording equipment, "saturation" caused from peaking levels (going in the red) can add character and harmonics to the recorded sound. However, digital peaking is very unpleasant sounding and ruins a recording. When recording with digital recorders, make sure your levels do not peak. You can always bring up the levels later in post, especially if your recording was done in 24-bit.

Sean Karpowicz, Product Specialist, GCI-Technologies (Gemini, Cortex, iKey)

Knock Off Wood

Woodwind musicians try to keep their instruments in top form, but that isn't always possible. Sometimes with woodwind you'll get clicks and clacks from the keys. To minimise that I'll mic them from some distance away – to get the full value of the sound yet attempting to lose the key noises. That doesn't always work. Bassoons sound best miked from the middle, not the top, which can make it impossible to eliminate the key noise.

Gary Thomas, Senior Engineer, Angel Studios – Microphones 2008

Recording Direct

The cleanest route to your recorder is the best, that's why a lot of engineers record flat and process with EQ and compression afterwards. A good mic, a good mic amp, and a decent audio interface into your DAW and no worries as the recording is pristine! If your mic amp happens to have some high quality EQ filters and some light compression specially for vocals, and more to the point you know what you're doing is right, then fine.

Alan Branch, Producer/Engineer and Audio Media Contributor

PrismSound

Nic Fanciulli
Funkagenda
Pete Tong
Deadmau5
Joshua Blair and Mark Ronson
(Sphere Studios)

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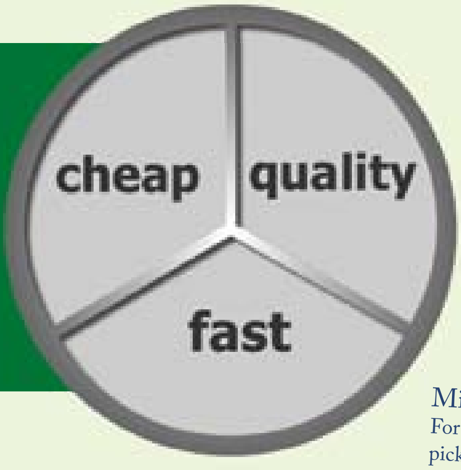
The Big One

"Choose Two."

Mark Yend and Kristofor Mellroth, MGS Central Studios,
Presentation At Develop Conference 2011



The Great Eight

Don't record at 16-bit. It's true, many of the release formats are 16-bit, but 24-bit buys you lots of headroom for mixing and processing. Don't convert until the very end of the process. And remember to dither when you convert from 24-bit to 16-bit.

David Mathew, Audio Precision

Recording vocals

Dead, dead, and even deader is how you want your room. Any reflections recorded onto a vocal take are impossible to get rid of, and don't normally sound very nice. The use of the modern day mic sound filter that envelopes the mic by placing a half round sound proof barrier is almost standard now as they stop reflections of the voice in the room bouncing back into the mic, the sE Reflexion filter being the most popular...

Alan Branch, Producer/Engineer and Audio Media Contributor

Mic Settings

For the majority of recordings the pick-up pattern is normally set to cardioid, however omni is the purest pattern and has a more natural sound if you have a good enough room. Patterns like super cardioid and hypercardioid, are all basic extensions of the cardioid 'rejection' shape, so a singer recording in front of the speakers because they don't like headphones or only have one room may use a supercardioid dynamic mic and place the mic with the speakers to its rear.

Alan Branch, Producer/Engineer and Audio Media Contributor

Drums – No Gate!

Don't gate kits when recording, just don't do it – you'll end up chopping off a lightly played press roll or similar and the producer will never employ you again, then again nor will the drummer.

Alan Branch, Producer/Engineer and Audio Media Contributor

Polar Explorer

Vocal recording tip: One thing that works really well is to use a mic that is multi-patterned e.g., cardioid, omni-directional, and figure-of-eight. Try recording the lead vocal on the cardioid setting, then switching it to omni and record a double. This is a cool way to make it a little different, create some space, and maintain a great blend. Once you get to triples and harmonies, try putting some distance between the singer and the mic. This can make for an excellent sonic landscape.

Mike Terry, Grammy nominated Producer, Engineer, and Sound Designer c/o Lauten Audio

Vital Space

Add space to your recordings: Ambient miking can aide in placing an instrument in the three dimensional space of a mix, front to back. Usually when something is far away it is muffled, more dynamic, and less distinguishable. The closer it gets to you, the more detail it has, the ear will naturally begin to compress and the dynamics become less by perception. Using this line of thought, you can apply it to your ambient mics. If you want the part to seem far off, then place the mic far away, even down a long corridor with little to no compression. If you want the part to be just set back from the immediate front of the mix, try the mic backed off a little, use a little more compression, and pan it just opposite of the direct mic, this approach can give nice balance and space.

Mike Terry, Grammy nominated Producer, Engineer, and Sound Designer c/o Lauten Audio

Safety Track

Record two tracks from the mic. If your pre-amp has two outs, attenuate one by about 10-15dB. That way, if you get an over on the normal one, the attenuated one will probably be fine. Some mic pre-amps' outputs can by Y'ed if they don't have two outs. Check with the manufacturer.

Joel Silverman, MD, Millennia Music & Media

A Softer Space

You don't have to spend a fortune on acoustic treatment to reduce the 'liveness' of a live room or practice space. Putting a couple of sofas in the room, throwing some rugs on the floor and hanging some blankets or even duvets on the wall helps to break up hard reflective surfaces and provide absorption across a wide frequency range (it also has the added benefit of making your room much more comfortable!). You can pick up freestanding fabric screens relatively cheaply from office suppliers, or even from schools that are having a refit, and these make a useful and effective way to improve isolation during recording.

Rob Holsman, Consultant, Jigsaw Systems

Location, Location

Taking your time to genuinely perfect your mic placement will at least halve (or almost eliminate) the amount of time required to mix. We've miked cabinets using combinations of RØDE large diaphragm condensers (on the back) and Shure SM57 on the cone to very good results. Even 1cm of movement can make all the difference! Take your time, and you mix engineer will thank you.

Alex Theakston, Marketing Co-ordinator, Source Distribution

Recording Instruments

Some instruments only record well with their natural sound, which includes the room. You need to capture a balance of the room and the direct sound, adjusting the mic distance until you find the right place. Too much of either results in the instrument not sounding as good as it naturally does. Listen to the instrument being played in your recording room, then listen to your recording – does it sound as rich and detailed, or a thin and poor impression? Obviously if the recording room is not so nice it's more of a job of getting the instrument to sound right first then finding a mic position.

Alan Branch, Producer/Engineer and Audio Media Contributor

Yeah, Good One...

"Oops, I wasn't recording" jokes never seem to get laughs. "Oops, I erased that" seems to be even less funny.

David Mathew, Audio Precision

AUDIO MEDIA 2010
Gear of the Year

drag
drop
done

awesome.

Studio One

Tired of having to read a 600-page manual when you really just want to record your song? Then it's time to switch to PreSonus Studio One instead. Studio One works the way musicians work — **intuitively**.

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They promised us digital audio workstations that would make recording quicker and easier. **PreSonus Studio One finally delivers that promise**.

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Kick Start

Miking a kick-drum: This is often times a double mic situation, one for inside to get the attack and punch, one for the outside to get body and depth. Start from the outside, and move inward. Listen while sitting in front of the kick and have the drummer step on it a few times, find a good spot, 3-8-inches away from the head and set the mic there. Again, I really like the low end capabilities of the Lauten Horizon because it can handle the SPL, but try any large diaphragm condenser. Go listen to this mic mixed with the overheads, listening in mono. With the phase switch on the kick mic pre-amp, find the low end loss, now move this mic forwards and backwards to find the point of maximum low end loss. Once found, flip the switch and now you are ready to move on to the inside mic. I like a Shure Beta 52. Start by moving this mic in reference to the outside kick mic, once these are locked in phase turn all the mics back on, pan your overheads and you will have a nice full, well balanced drum sound.

Mike Terry, Grammy nominated Producer, Engineer, and Sound Designer c/o Lauten Audio

Recording Pre-Amp

It's no good having a Ferrari with a Morris Minor engine. The pre-amp quality should really match the mic. Don't overload the pre-amp or the recording – watch for the singer's highest level, and at the same time don't record so low you can't actually see any level! The louder you can record generally the lower the noise floor will be.

Alan Branch, Producer/Engineer and Audio Media Contributor

Target Purchase

Bernard Butler once told me that if you have a decent mic and a decent preamp, you're set. As they say: garbage in, garbage out. So invest in a decent preamp and a decent microphone.

Alex Theakston, Marketing Co-ordinator, Source Distribution

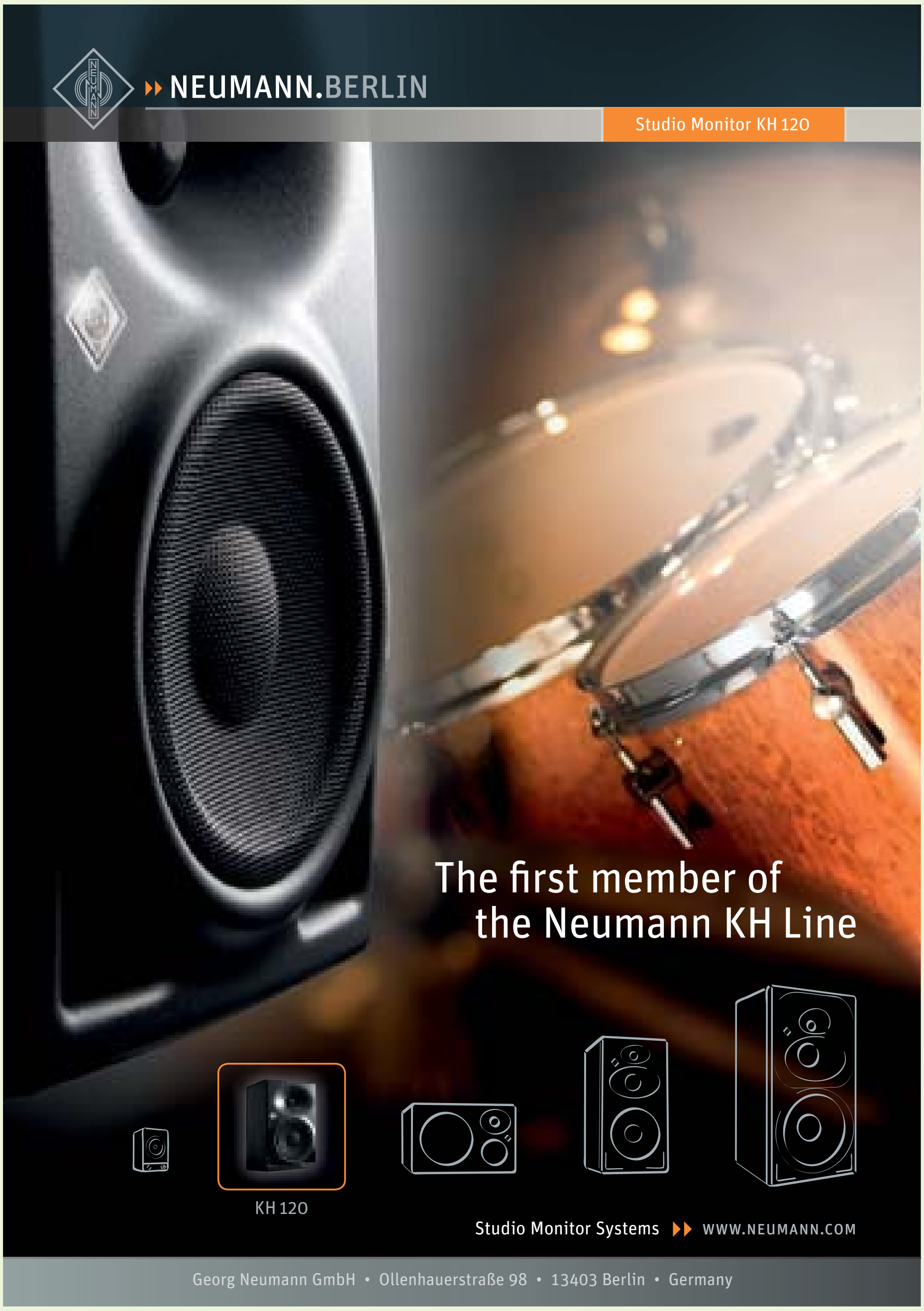
Supreme Snare

If you need a quick fix for mid-rangey snare drums that lack punch and dynamics, try this: Multiply the original snare track, sending the original signal through your best gate and then back on to the console, and send the second signal to another channel of the gate. With the second channel, use the gate to create a very staccato signal by setting the attack and release times very fast. Also, with this channel you can set the key filter on your gate less conservatively as we will want none of the cymbals to pass through and we are not going to actually use the gated signal itself in our mix.

The next step is to find a suitable speaker in your tracking room to send the staccato signal to. Take the speaker and place it upside down on top of a nicely tuned snare drum. If you use an NS-10 or similar speaker with a slippery finish, you may need to place the edges on some foam so that it doesn't move during the procedure.

Now place a microphone about two-inches from the side of the drum, and return the microphone signal to the console, mixing it with your original gated snare signal, down a mono buss, where you can EQ the result of your submix, and into your stereo mix. We use the CharterOak S600 as it has a big sound with an open bottom end and a gentle roll off starting at about 13kHz.

Michael Deming, President of CharterOak Acoustics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Ribbon Levels

There was a time when many ribbon mics did indeed sound dull, but today's mics range in tone from 'warm and vintage' (that's dull by some standards) to being almost as bright as any condenser. Indeed, a very few users even complain about a handful of models being too bright. As for low output, the ribbon mic has a transformer that brings the output up to about the same level as most other dynamic mics. They have, of course, a much lower output than condensers, but screaming into a ribbon gives you about 20mV, the same as for an SM58. The difference is that ribbon mics are usually used as an alternative to a condenser and have a lower output in comparison.

Andrew Graeme, The Byre Recording Studios, Microphones 2010

A Softer Space

You don't have to spend a fortune on acoustic treatment to reduce the 'liveness' of a live room or practice space. Putting a couple of sofas in the room, throwing some rugs on the floor and hanging some blankets or even duvets on the wall helps to break up hard reflective surfaces and provide absorption across a wide frequency range (it also has the added benefit of making your room much more comfortable!). You can pick up freestanding fabric screens relatively cheaply from office suppliers, or even from schools that are having a refit, and these make a useful and effective way to improve isolation during recording.

Rob Holsman, Consultant, Jigsaw Systems

Vocal Reach

Position a singer's mic slightly above but facing their mouth – this angle helps them open their throat more. Use a pop shield or get them to sing off axis so wind isn't blowing directly into the mic diaphragm.

Alan Branch, Producer/Engineer and Audio Media Contributor

TECHNOLOGY FOCUS

TELEFUNKEN Elektroakustik™ produces the world's finest microphones, from meticulously manufactured historic reproductions of classic vintage microphones that are handcrafted in the USA, to the R-F-T series of microphones that take advantage of the globalisation of technology.

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Daniel Jones, Vaudeville Post

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Daniel Sassen, Envy Post

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Drums: Kick And Toms

Placement is key. With the kick drum mic, the closer to the beater, the less bass you get – often engineers use two, one by the beater and one inside the sound hole or if the head is off just above the floor of the drum. Be careful the snare mic doesn't pick up too much high hat by positioning it with the hat to the rear, sometimes tricky with certain drummers' set-up. Ringing toms have to be dampened – tape, Moongel, O-rings, etc – these all help dampen the drums into a tight sound without losing power. There are lots of budget work arounds like old drum heads cut for O-rings, plumber's putty in place of Moongel, etc – just remember to use your ears. If it's not right keeping trying things out.

Alan Branch, Producer/Engineer and Audio Media Contributor

Up Close And Bassy

Cardioid and bi-directional (pressure gradient) microphones exhibit proximity effect: low frequencies are gained the closer the microphone gets to the sound source.

Eddy B. Brixen, Audio Specialist, DPA Microphones

Mic Basics

Choose a microphone that will fit the instrument best – a condenser, a dynamic, a ribbon… all of these pick up sound very differently. Condenser mics are very sensitive and very responsive to high frequencies. Quite open and accurate, they will capture everything. Ribbon mics are coming back into fashion and are regarded very highly for their warm vintage sound but have to be handled carefully; whereas dynamic mics are tougher and handle loud volume very well, are easier to isolate unwanted frequencies, and are also much cheaper.

Alan Branch, Producer/Engineer and Audio Media Contributor

Time Wise

Distance is not always a good solution for isolation. It may be counter-intuitive, but often putting the piano next to the drums, with a lot of baffling, is better than separating them by ten or fifteen feet. The bleed level may be a little less at fifteen feet (in a practical room, not as much as you might expect), but the bleed is also about a millisecond later for each foot of separation. It can be the 15 ms time delay that sounds so bad in the mix.

David Mathew, Audio Precision

PrismSound

'Portable, versatile and unbeatable sound!'
Joshua Blair and Mark Ronson (Sphere studios)

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Orpheus features line, microphone and instrument inputs, selectable RIAA Equalization for turntables, a built-in premium-quality monitoring mixer and concurrent ADAT and switchable S/PDIF or AES3 digital I/O plus support for outboard MIDI devices. The Microphone inputs include MS matrix processing and dual headphone outputs are provided each with their own volume control.

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TECHNOLOGY FOCUS

The Brauner Phanthera is the impressive proof that a phantom powered non-tube microphone can sound amazingly close to a real tube microphone. With the Phanthera microphones, Brauner expanded its product portfolio to include a reference quality microphone which could stand beside the sound characteristics of the coveted tube models VMA and VMX.

According to the Company, the Panthera range is characterised by finely elaborate and highly nuanced sonic details. Narration recordings also have clear gains in proximity and plasticity – results with convincing quality without time-consuming postproduction.

The Phanthera V is a multi-pattern version and features the same sonic qualities as its cardioid-only counterpart. Available alternate patterns are omni or bidirectional for adaptation to different recording situations.

The bidirectional pattern is particularly useful for simultaneous stereo recording with a second microphone in XY or MS configuration. An additional switchable attenuator reduces the output level of the microphone by 10 dB, providing further valuable dynamic range where necessary. This makes the Phanthera V a versatile professional tool for almost every recording situation.

www.brauner-microphones.de

UNANIMOUS VOICE

When We First Introduced the KRK KNS Series of Professional Headphones We Expected to Hear Things Such as:

"We're surprised you haven't done this sooner"
"Makes perfect sense -- headphones from a company of monitoring experts"
"I sure hope they are voiced like KRK monitors"

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"I've just fallen in love with a pair of KRK KNS 8400s. The detail in the sound is amazing. It really felt like I was hearing it in the studio. They are an incredibly easy listen, both from a comfort and a sonic point of view. After a very short while you forget you're wearing them and just bask in the great sound."

- Audio Media

"I received favorable comments all around on their sound quality and extreme listening comfort... which were followed by expressions of real surprise when I revealed how little they cost! These headphones provide a noticeably different listening and soundstaging experience than other headphones in their class."

- Recording Magazine

"They have us spouting words like "phenomenal punch", "clear as a Montana sunny day" and "hell ya!" to anyone within earshot. If hearing exactly what is happening in your favorite music or in your professional audio work is critical, the KNS 8400 will handle it with audiophile accuracy."

- Headphones.com

"The lack of high-end hype is appreciated for long or loud tracking sessions, and the bottom end is slightly plump without being too "poofy" or having "one note bass" syndrome. Their clarity, isolation, low weight, fold-ability and comfortable ear pads make an ideal headphone experience."

- Pro Audio Review

KRK SYSTEMS

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TECHNOLOGY FOCUS

The sE Electronics Reflexion Filter was developed (under patent pending) by sE in response to an overwhelming demand to provide a solution for people without fully treated rooms, or who need a portable system with some degree of treatment (maybe for OB work, webcasting, or just a portable vocal rig they can rely on for a consistent sound). The thing is it's extremely hard to do this is a small space... and there are a number of key misconceptions which lead even hardened pro's, to make bad decisions about treatment.

An acoustic treatment device should not have its own 'sound' since if it does, then it is colouring the mic you just spent lots of money on… not good. Foam products simply remove HF above around 2KHz, and little below this, despite some manufacturers claiming otherwise... a piece of 1" thick foam does virtually nothing to the frequency band of 50-500Hz..

The sE Electronics multiplayer technology was 18 months in development and uses several different layers of different materials and air spaces, to give an effectively colourless, and highly effective (considering the small footprint) form of absorption and diffusion for source audio.

www.seelectronics.com

Distant Relations

The directionality of a microphone is independent of the transducer principle (dynamic/condenser), and the frequency response of the omni (or pressure microphone) is independent of the distance.

Eddy B. Brixen,
Audio Specialist,
DPA Microphones

Piano Glue

Add some vibe to a piano that is the featured instrument: Often times if there are other mics up in the studio that had been used for other things, I will quickly listen to them to see how they blend in. A mic pointing the other way from the piano that was originally set up for a snare drum and going through an 1176 is the surprising glue that can really add some vibe.

Mike Terry, Grammy nominated Producer, Engineer, and Sound Designer c/o Lauten Audio.com

Distant Keys

Piano as a backing instrument: If the piano is more of a backing instrument and filling in some space, but not so prominent, I will try to determine the frequency range it can sit in without disrupting the more featured parts, often times this means panned off to one side or another without a detailed stereo image. More distant miking can work for this application, for one, it helps add depth by picking up some room sound that can stick the piano further back in the mix, and two, the presence isn't as featured which also helps push it back without hiding it too much.

Mike Terry, Grammy nominated Producer, Engineer, and Sound Designer c/o Lauten Audio

Myths Busted

As a principle the omni can have a frequency response going all the way down to 0Hz (but is seldom allowed to), and small membrane microphones pick up as much low-frequency content as large membrane microphones.

Eddy B. Brixen, Audio Specialist, DPA Microphones

Recording Rooms

Poor room acoustics need help. Are there any unwanted noises? Can you isolate them? Is the instrument best placed in the room? Try a different mic, try adding more dampening to the walls – or some corrugated metal roof sheets if you want it more 'live'. Remember to remove anything that might rattle or make noise in the room – the usual culprits are someone forgetting to take the snare off the drum. Use carpet for the mic stand and the singer to try and stop any foot tapping being picked up – and make sure the mic stand is tightly secured. With a heavy mic and noise filter you don't want it drooping in the middle of a take.

Alan Branch, Producer/Engineer and Audio Media Contributor

Drum Roll

Find the sweet spot for drums in your room: Try setting up and striking the kick and snare all around the room and just listen, this will help you find the spot that works the best. This way, when you do get the mics up, you will have something nice to listen to pretty quickly.

Mike Terry, Grammy nominated Producer Engineer, and Sound Designer c/o Lauten Audio

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In The Mix covers what happens after recording and production – it could be straightforward mix and effects ideas, loudness and metering tips, or editorial issues.

Humane Compression

Human hearing is more sensitive to mid range frequencies (let's say between 600 and 3kHz). So why not setup the compressor to do the same? If your compressor has a pre-filter section, choose a parametric mode in the pre-filter section, a Q value of 0.7, a boost of between 4-6dB, and a frequency between 600 and 3kHz. Using some program material or a drum kit, audition the effect of first changing only the amount of gain (vary it between 0-6dB). Then try out different frequencies (use a gain of 6dB for maximum effect).

The compressor can get a little pump in it, which may (or may not) be desirable. But note how much of the character of the compressor has changed just from adjusting the frequency or gain control of the parametric EQ in the pre-filter section.

You can try tighter Q values (2.0 or greater), but that can make the compressor too frequency selective. Wide Q settings (less than 0.7) reduce the frequency selectivity.

Colin McDowell, DSP Engineer, McDSP

Good Gain, Good Gain

Maintain good gain structure throughout the mix. Good gain structure is essentially about leaving enough headroom on each individual channel so that tracks aren't fighting to be heard. The results are that each individual sound has the "space" that's so important and that the essential headroom for mastering remains.

Rebecca Woolf, Purchasing Manager, HHB Communications Ltd

Pedal Power

If you really think about it, there are two factors that you have to focus on when producing a new song for airplay: 1) The song itself – is it a well written and well structured?, and 2) will it cause people to stop and listen? Led Zeppelin's Immigrant song, Jethro Tull's Aqualung, Dire Strait's Money for Nothing… all had great riffs and unique exciting tones.

So here we are years later… what can we do to make a recording stand out?

How about integrating all of those cool guitar pedals into the production to create some interesting new effects? Wah on the kick drum… envelope on the snare… distortion on the voice… today, there are literally thousands of pedals out there that run from simple to off the wall.

Try connecting them to your recording system using a re-amper and a DI and have fun! Best of all, new sounds spur on creativity! Who knows what exciting effects, riffs or primal screams you will come up with?

Peter Janis, President, Radial Engineering Ltd

Dialogue: Smoothly Does It

If the noise floor on one shot is louder than the others, and the cross-faded transitions are audible, you may need to lay the noisier room tone across the whole scene to even out the noise floor. This may seem paradoxical to contaminate clean dialogue with noise, but a smooth noisy soundtrack is much less distracting than one that jumps from loud to quiet.

Susan Pennington, Dialogue Editor Spool Post, Audio Media Feb 2010

Russian Monitoring

As a general rule I start off monitoring big and end up small. When I'm working on the basic EQ-ing of sounds (see below) it's good to hear the full frequency range, especially the bottom end. That's only really possible with fairly large monitors working at a relatively high volume (preferably with a sub) but once I've got my overall sound shaping sorted out and a 'good vibe' going I move to nearfields to balance. I find that fine tweaking the mix works best for me on small monitors at a low volume and I'll check it on a variety of systems, including a mono auratone, my car stereo, laptop speakers, and headphones. Once the mix sounds good on all of those I know that I'm pretty much there.

Simon Gogerly, Producer/Engineer and AM Contributor

Left And Right

Whether you're mixing on a console or in the box it's good to get your tracks and channels arranged in a logical, familiar order. I use a system that I inherited from the usual layout of tracks on multi-track tape and I've gradually refined it with the use of colour for different track types. Another basic thing is to have everything in your song and on your console properly named – the recording engineer may know what "Audio 36" is but I don't! All of this may seem painfully obvious but there is a reason for emphasising its importance. I wasn't fully aware of why it was so important until I read Michael Paul Stavrou's fantastic book Mixing With Your Mind, which explained it very simply: Mixing is split into two distinct and separate processes, the technical (left brain) and the creative (right brain). It's tempting to leap into the creative (fun) part of mixing too early, only to find that you have to grind to a halt to fix a technical issue. Switching your brain from one side to the other is time consuming and counter productive so it's best to get all of the leg work out of the way before you start with the fun stuff....

Simon Gogerly, Producer/Engineer and AM Contributor

Pre-Rendering

When I started mixing, back in the multi-track tape days, everything on the tape had to be finished before a mix could start. The infinite possibilities of DAWs have changed all that and there's often a stack of editing/tuning/re-arranging to be done come mix time. Wherever possible try and get these tasks completed before piling into the mix. It can be a bit of a slog but it will save a lot of time and brain-switching later....

Simon Gogerly, Producer/Engineer and AM Contributor

Dialogue: Help Out the FX Editor

Any non-dialogue sounds that you remove from your edit may be useful to the effects editor. These include transients such as footsteps and door closes, as well as subtler movements as long as they are good quality recordings. Lay these off, in sync, onto a separate track, and pass them on to the Effects Editor. These may be used instead of, or as well as, Foley.

Susan Pennington, Dialogue Editor Spool Post, Audio Media Feb 2010

Synth Squeese

I work with a lot of synthesisers, hardware, soft synths – you name it I work with it. I usually find a few different ways to control the dynamic range of each individual line, I usually assign them all to a synth buss, hit it with 4:1 compression, which for synths isn't that hard, then I work on a medium attack and similar release, just to 'gel' all the synths together, for any sound sculpting compression, I put a single compressor on the synth line I want to compress.

Charles Wilson III, Keyboards/Programmer, Smart AV Tango user, (John Mayer, Justin Timberlake, Rihanna...), C/O Smart AV

Vocode!

I had come across the vocoder a few times in my career but it wasn't until I worked with Underworld that I learned of its full potential. One particularly useful application in mixing is to layer a vocoder with the lead vocal (playing the same melody) as an alternative to ADT or chorus. In fact it can be quite a useful way of reigning in a slightly pitchy vocal performance without resorting to tuning. I sometimes find that tuning a vocal can compromise its character, flattening it out. The vocoder makes it sound more in tune without losing any of its personality.

Simon Gogerly, Producer/Engineer and AM Contributor

Take A Break

Take regular breaks. This sounds inconsequential, but is all-important. Listening fatigue impairs judgement, and the only antidote to listening fatigue is to stop listening! Briefly, of course...

Alex Theakston, Marketing Co-ordinator, Source Distribution

Dialogue: Tidy Tracklay, Tidy Mind

Chequerboard your tracklay so it's neat and clear. Talk to the Dubbing Mixer to find out what their tracklay preferences are; most prefer you to keep each angle or mic type on separate tracks, so all the regions with similar noise or tone issues are on the same track, making it much easier to apply corrective processing. Label tracks and regions clearly and consistently with character name and microphone information. I also like to colour code regions according to character. Remember that someone else will be mixing the tracks you've prepared, so they've got to be able to understand at a › glance what's going on.

Susan Pennington, Dialogue Editor Spool Post, Audio Media Feb 2010

Terror Tools

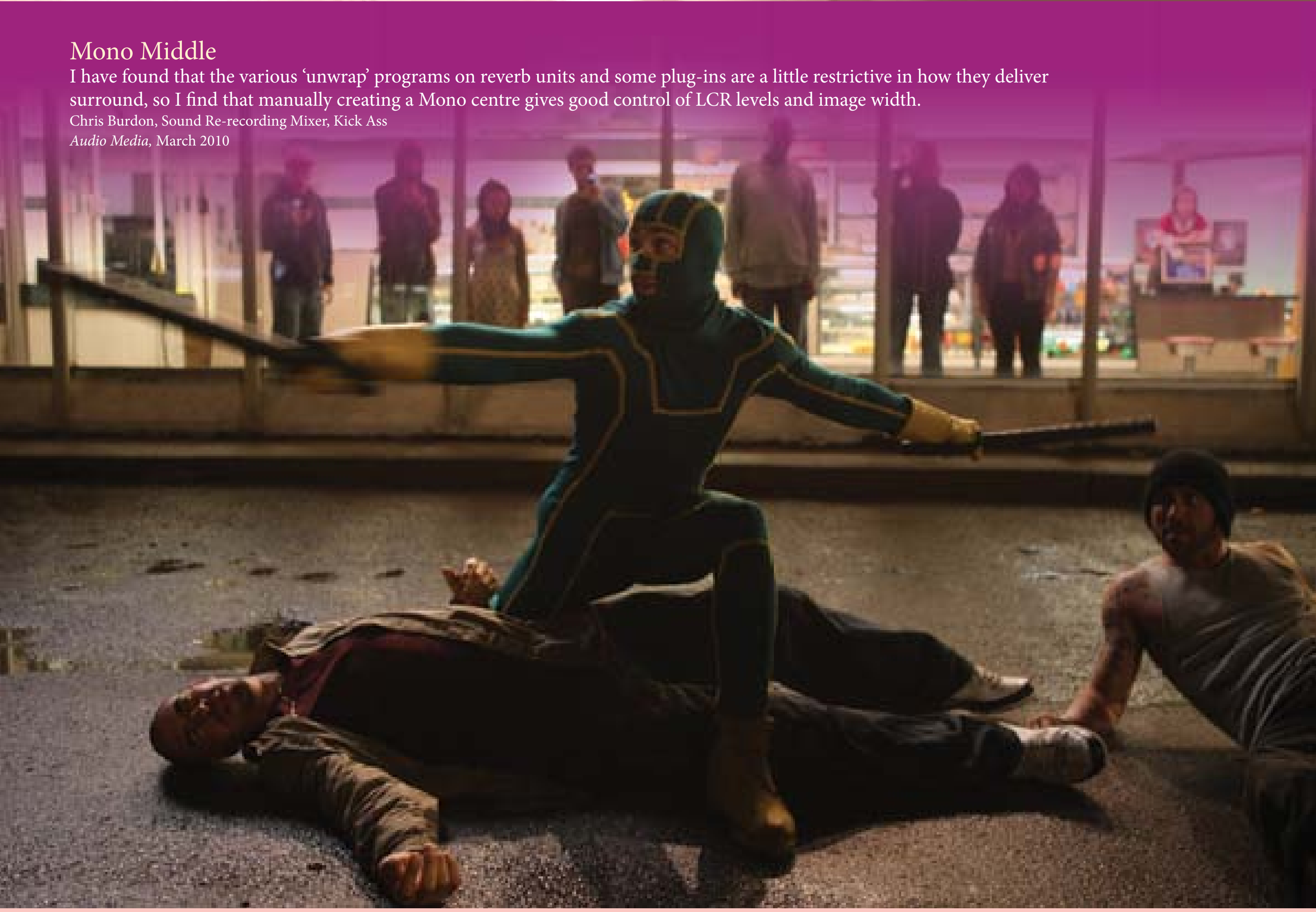
GRM Tools was just phenomenal. We used that for creating just weird, strange effects that you don't normally hear. AudioEase's Altiverb is some of the best software that I've ever heard in my life...and Speakerphone – we used that a lot too.

Don Veca, Audio Director, Dead Space
Audio Media, July 2009

Mono Middle

I have found that the various 'unwrap' programs on reverb units and some plug-ins are a little restrictive in how they deliver surround, so I find that manually creating a Mono centre gives good control of LCR levels and image width.

Chris Burdon, Sound Re-recording Mixer, Kick Ass
Audio Media, March 2010



Off The Shelf Foley

A good application for Transient Modulation plug-ins (like the Oxford TransMod) – not in the usual way of accentuating attack phases of percussive sounds but more the opposite – is removing those very transients by applying the negative range of the scale of the control.

This proves to be especially useful when you have to add steps to a film scene where there is no time for a Foley artist to come around and do the job and you need to refer back to a pre-recorded library. Often the steps in libraries sound like libraries – recorded in another acoustical environment and often too crisp, too clear, or just too percussive. Rather than cutting the high end, which often doesn't give the desired result, the TransMod can really help to mould the steps to the required scene.

Theo Schulte, Product Specialist, Calrec Audio

Dialogue: Noise Killer

If your role as Dialogue Editor encompasses noise reduction, choose your tools carefully, and don't overdo it. If you've got a hum or buzz at particular frequencies from ballasts or dimmers on set, a simple notch filter or 'hum/ buzz remover' may suffice. Save the broadband noise reduction for across-the-spectrum noise, as this can leave unsavoury artefacts if overused. Where possible I use automation on processing rather than hard-rendering, as it's easier to tweak in the mix, but if you have to hardrender, always keep a copy of the un- processed audio muted in the tracklay, just in case the mixer needs to go back to the original.

Susan Pennington, Dialogue Editor Spool Post, Audio Media Feb 2010

TECHNOLOGY FOCUS

Genelec's DSP series builds on technology from the 8000 series with the addition of digital networking and an on-board Digital Signal Processor. A network of up to 30 loudspeakers can be created and controlled from within the Genelec loudspeaker manager software. Having done so, users can harness AutoCal to improve problems in the loudspeaker room response. AutoCal uses a microphone to measure every loudspeaker and subwoofer on the network and calibrate them individually or as a system for any given listening point. This capability makes the system particularly useful in rooms with minimal acoustic treatment. It is also useful when moving between facilities, as the same room response can be guaranteed in each location.
www.genelec.com

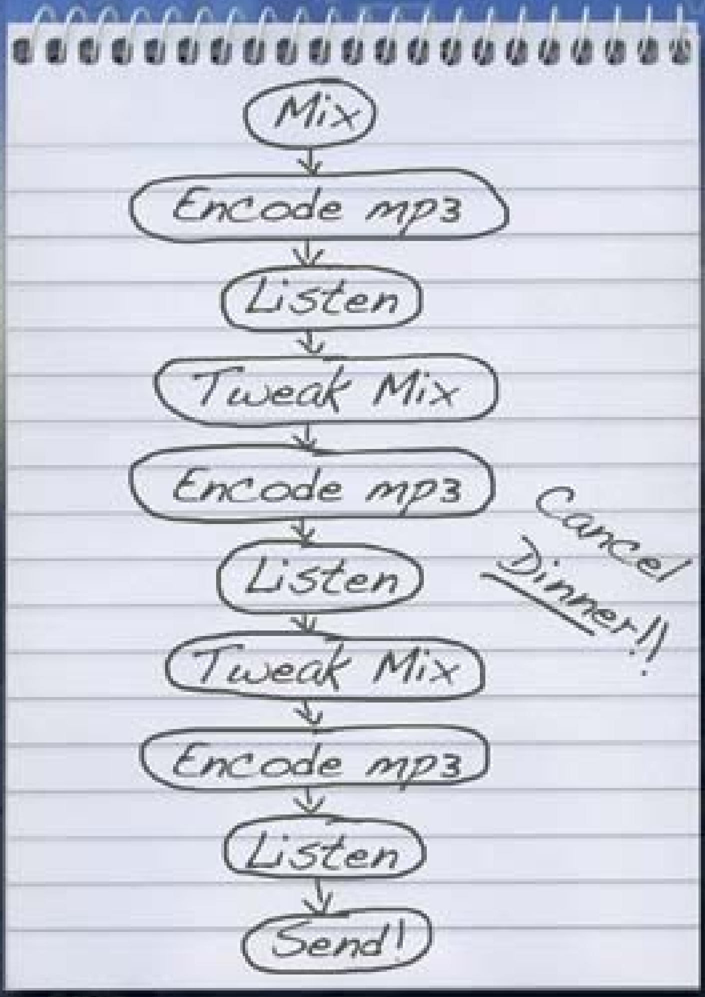
Descriptor

In sound design, start with a sound, then add adjectives.

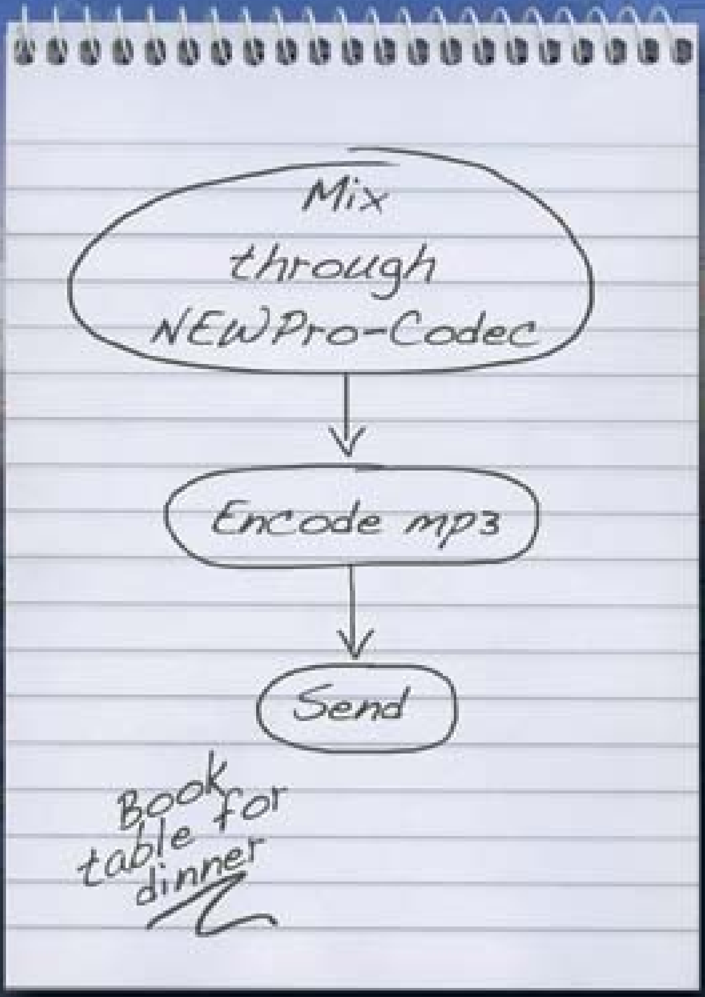
Mark Yend and Kristofor Mellroth, MGS Central Studios, Speaking At Develop Conference 2011

Audio Encoding Changed for Good

Old way to encode audio


Mix
Encode mp3
Listen
Tweak Mix
Encode mp3
Listen
Tweak Mix
Encode mp3
Listen
Send!
Cancel Dinner!!

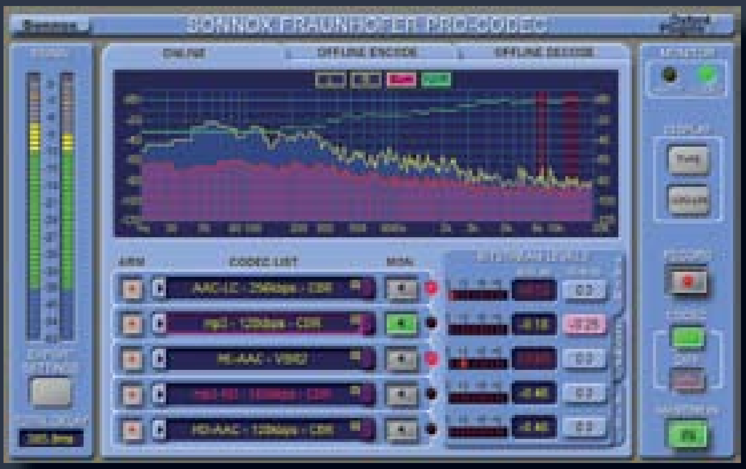
New way to encode audio


Mix through NEW Pro-Codec
Encode mp3
Send
Book table for dinner

Real Time Codec Auditioning

The Sonnox Fraunhofer Pro-Codec makes it possible, for the first time, to audition and encode to multiple formats in real time within a DAW environment. Maximum fidelity is assured, as the Pro-Codec helps create compensated mixes optimized towards specific target codecs for final coding and online distribution.

- All major codecs supported: mp3, AAC, lossless codecs etc.
- Comprehensive auditioning with glitchless switching
- AB and ABX mode for blind statistical testing
- High resolution display and extensive metering
- Real time encoding, plus offline encoding and decoding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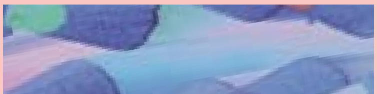
More Mxing

Because music and other audio elements are often delivered right up to the final mix, Mather keeps the editing 'virtual' so that they can work offline to update these new elements and conform to the old ones without taking up valuable theatre time. "This means there are fewer hours spent conforming desk automation and more available for mixing. It also narrows the possibility of any corruption occurring as a result of heavy conforms.

James Mather, Sound Editor, Clash Of The Titans
Audio Media, May 2010



Prepare To Master

When sending mixes to a mastering engineer, always try and leave a handful of dBs between your highest peaks and OdBFS (digital full scale or zero). There are a number of good reasons for doing this, not least that unless your DAW meters are registering every sample – SADiE can do this, for example, but many do not – they may under-read and result in a clipped signal you're not aware of. Something like a clear 3-4dB should work fine, but don't worry too much if your mixes are coming in at a lower level than that: with 24-bit audio you'd need to reduce the level by 48dB before achieving the same dynamic range as 16-bit, so it shouldn't be an issue.

Nigel Palmer, Lowland Masters and Audio Media Contributor

Mix Minus

Reducing or taking out the frequencies that you don't need is an effective way of creating space and avoiding mix mud! It's fairly clear what needs taking out with some sounds; there's no need for low frequencies in a tambourine track for instance. Other sounds can be more tricky, especially big, wide synths or anything with a broad spectrum. It's important to decide what part of the sound is doing a job and which parts aren't and to EQ accordingly. I use high pass filters and selective dipping in the lower-mid area to allow plenty of room for the low frequency elements (kicks, basses, chunky guitars etc.) to do their work. I also pay particular attention to the vocal clarity range (around 1-5 kHz) to make sure that there's not too much competition for your ears' attention.

Simon Gogerly, Producer/Engineer and AM Contributor

Dialogue: Prepare for ADR

If you really can't save a piece of dialogue by nifty editing or cleaning, it'll need to be re-recorded. If you flag up a line for ADR, edit it anyway as best you can, keep it muted on the tracklay, and lay off a copy on a separate track to give to the ADR Editor. Edit some room tone to fill the gap underneath the ADR. The Dubbing Mixer then has the option to use the ADR or revert to the original.

Susan Pennington, Dialogue Editor Spool Post, Audio Media Feb 2010

Manual Compression

Compression is one of my main mix tools. I've got more hardware and plug-in compressors than anything else in the studio. However, there are certain circumstances that they can't handle well, the main one being lead vocal detail. Even a good multi-band compressor won't always recognise the difference between an 'N' and an 'M', or a breath and an 'ooh'. They aren't as intelligent as that. I've found that the best way to get all the detail in a vocal at the right level is to go through it with a fine tooth comb drawing in volume and EQ automation. It's a bit of a long winded process but, to me, the results are so much better than trying to do it automatically and it allows the voice to sit better in the mix. And if it makes the mix better it's always worth the effort.

Simon Gogerly, Producer/Engineer and AM Contributor

Press To Impress

Vocal tracks often need to have their dynamic range reduced, but rather than using a compressor, try one or both of these techniques: 1) Have the vocalist work the mic, moving in for the quiet moments and out for the shout. 2) Ride the fader, as you record or mix. You will smooth out the level, and it will sound pristine, with no compression artifacts.

David Mathew, Audio Precision

Surprise Surprise

When working on an unfamiliar console (analogue, digital, clockwork), get to know how the mute system works including any groups or master assigns. Then clear it all and create your own setup. The same thing goes then for VCA/DCA groups and mix bussing. That way you wont be caught out by a bad dose of soundperson's surprise!

Leon Phillips, Product Manager, Allen + Heath

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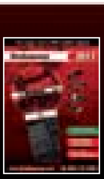

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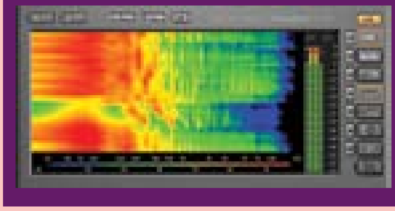
TECHNOLOGY FOCUS

NuGen's Visualizer plug-in contains reference tools that enhance workflow and help users to meet broadcast standards. The suite comprises of level meters, spectrum analyzers, spectrograms, vectorscope, stereoscope and a correlation meter. It has a flexible, resizable interface that adapts to your working environment and the amount of information displayed.

Users can make a record of the full data set at any point in time, using Visualizer's snapshot memories. Because these snapshots record the full data set, it is possible to zoom, scroll and examine views that were not open at the time of capture.

www.nugenaudio.com



Loudness: LU, LUFS, and LKFS

All of these units are used for loudness measurements. LU stands for Loudness Units and is a relative measurement like dB. A loudness increase or decrease of 1 LU would be equivalent to a gain increase or decrease of 1dB. LUFS is the absolute reading of loudness in relation to full scale, as it is defined in EBU R128. LKFS is a similar reading and is specified in ITU-R BS.1770. The meaning is loudness with 'K'-filter in respect to full scale. LUFS equals LKFS.

Mike Kahsnitz, Technical Director, RTW

Dialogue: Reconstruction

You can often save dialogue by reconstructing it from alternative takes or wildtracks. If there's a stomping footstep or door close over an intimate line, check through the other takes or wildtracks of the scene to see if other lines are clean. You may only need a single word or syllable to splice in to the original. Whenever you reconstruct dialogues in this way, you should always keep a copy of the original, either muted in your tracklay, or on a separate 'alt' track in case the Director doesn't like the takes you've chosen (although nine times out of ten they won't even notice!).

Susan Pennington, Dialogue Editor Spool Post, Audio Media Feb 2010

Get A Vision

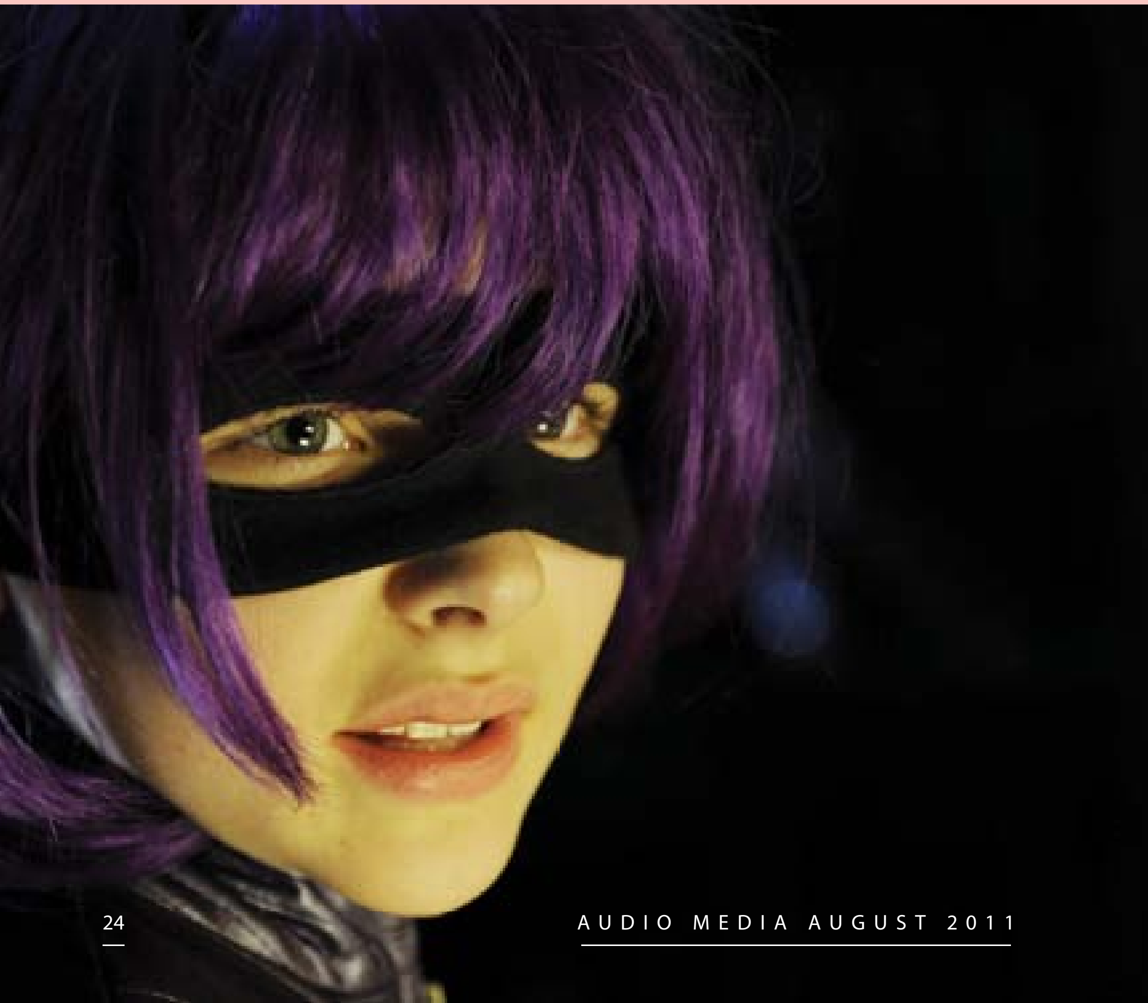
Once you're familiar with the material (I always have the faders up halfway while I'm getting organised) it's vital to formulate a plan for the mix. Sometimes it's blindingly obvious what it needs to sound like, particularly if you're working within a very specific genre and the production style is clear. However, I often get presented with material that doesn't have a specific direction even though it may be performed and recorded well. In those circumstances I'll ask the band and/or producer for a few reference tracks and during the course of the conversation I'll try to get an idea of the influences involved. Sometimes reference points aren't necessarily pieces of music. When I was preparing to mix an album by Bic Runga (New Zealand's most successful female solo artist) she sent me a DVD of a marvellous old black and white Cuban film. The atmosphere and style of that film really inspired the whole sound of the album. It was immediately obvious to me what the mixes should sound like – a soundtrack to that film!

Simon Gogerly, Producer/Engineer and AM Contributor

Dialogue: Long Crossfades

One of your main aims is to smooth out the production sound so that audiences won't notice the change between different noise floors from shot to shot. In simple cases, this can be done by crossfading between audio regions, providing the noise floor is not significantly different between shots. Keep your fades as long as possible to ease transitions. This may mean editing in some clean room tone to one or both regions in order to create enough audio to create the fades. I usually have Pro Tools set to create 'Equal Power' fades as a default, but you should experiment and use whichever shaped curve sounds best.

Susan Pennington, Dialogue Editor Spool Post, Audio Media Feb 2010



I Believe

When you get it into the game, believability out-rules fidelity. Actually you can tell from all of our sound content that this is a guiding principle – in eight out of 10 cases we'll use the sounds that sound real – even if they're of lesser fidelity. We can always pimp them later with extra detail.

Stefan Strandberg, Audio Director,
Battlefield: Bad Company 2
Audio Media, May 2011

THE MUSIC PRODUCERS GUILD AWARDS 2012

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Your chance to nominate for the Music Producers Guild Awards 2012 continues until Friday 16th September 2011.

The Music Producers Guild Awards celebrate the creative talent and technical ability of the UK's music producers, engineers, mixers and re-mixers.

The 2011 event was a great success with top music talent in attendance including Chris Martin, James Dean Bradfield, Gary Numan, Plan B, Union Sound Set, Andy Burrows and composer David Arnold. The February 2012 event will take place again at London's Café de Paris and see two new categories being awarded opening up the MPG's international remit.

Nominations are now open and tickets will go on sale for this highly-sought after event in November 2011.

Visit www.mpgawards.co.uk
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UNIVERSAL AUDIO

Make Something 'Too Loud'

It's a good idea to identify which musical parts in your track are the most important. It'll often be a catchy riff, bassline or a vocal hook. One of these parts can be given a bit of special treatment sound-wise and then balanced quite loud to emphasise its catchiness. I'll often get a balance using only the vital elements – rhythm track, vocal and hooks – then gradually mix in the supporting tracks. It's often tempting to try for a 'perfect balance' where all the sounds have equal clarity and importance but in practice that approach can end up confused or bland.

Simon Gogerly, Producer/Engineer and AM Contributor

Listen With Your Ears, Not With Your Eyes

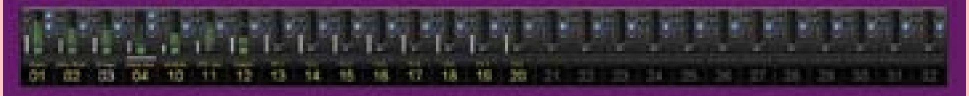
Metering and waveform displays are all part of the modern DAW method, but they can distract you from listening to the audio. Try mixing without looking at the screen and act on what you can hear, not what your eyes tell you. It's easy to miss a section of distorted audio because the waveform looks right, or to rely too heavily on metering for overall left-right balances. If something looks like it's in time but doesn't sound in time, then it probably won't be in time.

Rob Holsman, Consultant, Jigsaw Systems

TECHNOLOGY FOCUS

Smart AV's Tango console uses a scrolling screen based channel overview display called MonARC. MonARC's touch screen display provides the selection of up to 300 channels. The display can be configured over multiple displays with the addition of the extension bay. It can also overlay workstation and picture displays.

The system provides a meter bridge with indicators for EQ, auxiliary sends, solo, mute, automation and faders. It also provides channel or group metering for surround sound, with up to 12 channels in a group.
www.smart-av.com



Catalogue Shot

It's not generally known that many CD manufacturers, particularly the larger ones such as Sony DADC, use CD catalogue numbers as a kind of administrative hook to hang the whole manufacturing process off, and this helps ensure that jobs are tracked through the system and delivered on time. Even if you'll only ever do one title for your own label it's therefore a very good idea to invent a catalogue number: something in the format ABC001 would work and help move things on.

Nigel Palmer, Lowland Masters and Audio Media Contributor

Fan Boy

Sound design for a gigantic hovercraft that Bond uses to chase the Ekranoplan, a Russian cargo plane that flies some ten feet above the Caspian Sea was provided by – "a simple desk fan. The sounds we achieved by sticking various objects in the blades of the fan running at different speeds – metal, plastic, and cardboard – were totally incredible. Naturally, we then processed the hell out of them but I have to say it proved a really cool, improvised session at a time when we were really struggling with that sound – it's a must have for every foley studio.

Mathias Grundwaldt, Lead Audio Designer, James Bond 007 – Blood Stone
Audio Media, November 2010

LoMo

We've come up with a technique for getting more of a 'location' sound from ADR, using plug-ins to take the pristine out and put some grit back in. The mixer's gonna kill me when I reveal this, but actually we use DigiDesign's Lo Fo – it's a simple plug-in but it does a really nice job. As soon as you apply our parameters to the plug-in you go 'oh wow, that's good.'

John Laing, Supervising Sound Editor, Saw VI
Audio Media, November 2009

No Losers

Don't use lossy coded audio formats for anything other than final distribution to the end listener. Stick with linear until the final copies are made.

David Mathew, Audio Precision

Sequential Solo

My secret at the beginning of a mix is to solo one channel after another to hear all 30 tracks in about two minutes but without the distractions of lots of keystrokes or mouse moves by just keeping my finger on one of the faders on the console as I slide along this thing called an Arc which pops each channel into that fader, soloing just the one at a time. I love this part because it neatly programs my mind so I can hear exactly what everyone is doing and how efficient they are voltage wise because I am metering it on a VU meter at the same time. That global prospective gives me such a head start over what is needed with this mix.

Michael Stavrou, Engineer and Author, C/O Smart AV

Dialogue Only

Only dialogue should end up on your tracklay. When the dialogue stem is muted for the M&E mix, any footsteps, door closes, etc, left in your edit will be muted too, and so will be missing from any foreign language mixes. Replace these unwanted sounds with matching 'fill'. Be aware that breathing also constitutes dialogue, and this can often present more problems to edit than the dialogue itself, as you're often left with double breaths or un-rhythmic breathing at shot boundaries. You might have to fake the sync slightly to make the breathing sound natural.

Susan Pennington, Dialogue Editor Spool Post, Audio Media Feb 2010

Double Drums

I have been mixing in the box for years, both in the studio and out on the road. I find it really use-full to occasionally take a drum sub group and just duplicate it. Having one sub group with full dynamic range while the other is getting pounded pretty hard using a Waves 1176 plug-in or something similar, it lets me create two different sonic templates that I can blend together to get real depth. On the road it's a hard rock show with Snoop; we have Drums, Bass and Guitars, so it's easy to loose definition in the mix. Using this technique to create depth allows me to emphasise the drums but still have room for the other instruments to live.

Dave "Dizzle" Aron, Audio Engineer (Prince, Tupac Shakur, Snoop Dogg, Dr. Dre...), SMart AV Tango User, C/O Smart AV

The Phantom Tweak

No one's ears are as golden as one might like to think. It's easy to fool yourself. Here's an example I have lived: mixing a tune, the producer suggests a little more top on the vocal. The engineer agrees, and reaches up to the EQ knob on the channel strip. He moves it up a click, the producer and the engineer listen a moment, and then nod: good change. Then the engineer notices his hand is on the wrong channel strip...

David Mathew, Audio Precision

Biased Cut

This is for analog tape editing only; I know some of you still own razor blades. If you are inserting tape – for spacing or to add more time for longer overdubs, etc – don't use virgin tape. Bias the tape first by recording silence on all the tracks. This will avoid the "pop" that would otherwise occur when the edit goes by, as the signal drops from the high-level high-frequency bias tone to zero.

David Mathew, Audio Precision

Dialogue: Get Hold of the Audio Rushes

If the audio was recorded on a multi-track recorder, it's likely that the editor will only have used the sound recordist's two-track mix-down in the visual edit. You'll need access to the audio rushes to reconstruct the separate tracks using re-conforming software such as Syncro-arts' Titan. The recordist will have also, where at all possible, helped you out by recording room tones in each location, and possibly wildtracked dialogue if they were able to foresee problems in post. This can often save a scene from ADR, so I always check through the recordist's log sheets before starting to edit, so I know what I've got to work with.

Susan Pennington, Dialogue Editor Spool Post, Audio Media Feb 2010

Save Frequent Versions

Being able to backtrack in your mix is a great thing. It's worth saving a new version of your project file every time you complete a section, in case you decide that a particular idea isn't working out. Session files are tiny compared to all the audio files and don't require duplication of media. Being able to step back through the various stages of your project means, if something's not working out, you can go back to an earlier state and try a different idea.

Rob Holsman, Consultant, Jigsaw Systems

Don't Be A Gear Snob

It's great to have fabulous, expensive gear. We scrimp and save to buy that special 'thing' that'll make all the difference to our sound. The truth is that it'll make some, possibly wonderful, difference but not 'all the difference'. In fact, you're more likely to make a big difference to your sound with a few well-chosen, inexpensive oddities. My personal favourites are an old analogue echo box (an Evans Echopet), an Adrenalinn (midi-synced filters, distortion and drums), a home-made Theramin, and a Realistic mini-speaker. A few hours now and again scouring charity shops, eBay, and old music shops can really pay dividends.

Simon Gogerly, Producer/Engineer and AM Contributor

Quick Hit

Use a model when you mix. Pick an album or two you know and love, and A-B between that and your current mix. You will end up in the ballpark.

David Mathew, Audio Precision

Why Multi-band?

The idea behind multi-band processing is that by breaking down the audio into ranges of frequencies, referred to as 'bands', each band can be processed by a gate, expander, and/or compressor with more accuracy. Multi-band dynamics processing first starts with a set of filters, commonly referred to as a 'crossover', to split the signal into selected frequency ranges. Once separated, each band can be fed into a gate, expander, and/or compressor (the McDSP ML4000 plug-in does all three) for processing. Then the signals are recombined into a full range signal. Consider the wide range of frequencies a single-band compressor has to contend with – low bass guitar sounds change slowly in comparison to the transients produced by the hi-hat of the drum kit. If the compressor is made to operate on the combination of these signals, the bass guitar and hi-hat will trigger different responses from the compressor, and the overall effect may not be suited to either (or both instruments). Obviously (hopefully?) the two elements are mixed on different tracks, but will eventually be combined into a rough mix for a mastering engineer to tweak. If the original tracks are not available, a multi-band compressor will be able to separate the bass guitar and the hi-hat, operate on each with their own compressor threshold, ratio, attack, and release settings, and then recombine the signals for a better overall result.

Colin McDowell, DSP Engineer, McDSP

Ummmmm

Don't believe the hype. There is no priesthood of secret knowledge in audio. Well, there is, but they are false prophets.

David Mathew, Audio Precision

Meter Made

Set up a phase meter or a Lissajous display while you mix. It won't tell you everything, but it's a handy way to monitor the phase and polarity correlation of your tracks.

David Mathew, Audio Precision

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Dialogue: Clean Noise

Whenever you need room tone to fill gaps, you'll need to find 'clean' sections of noise from the same shot, without any breathing, lip smacks, footsteps, etc. Room tone on either side of the section in question will be most likely to match, so start by pulling out the handles of the region. If there's not enough here, look to the rushes for the rest of the same take, or alternative takes of the same shot. Try not to loop room tone, as you'll almost always hear the repeat. Match the room tone 'fill' appropriately; if an actor has a noisy jacket, you might need to use sections of the jacket rustle to smooth out the edit, rather than the cleanest room tone you can find.

Susan Pennington, Dialogue Editor Spool Post, Audio Media Feb 2010

Loudness: 1770 vs 1771

With ITU-R BS.1770, algorithms to measure audio programme loudness and true-peak audio level are specified. In March of 2011, ITU approved a new release of this standard named ITU-R BS.1770-2. The new aspects are part of the Annex 1 of this standard. Annex 1 meets the input from EBU regarding the use of a silence gate and a relative gate in combination with the already defined "K"-filter to assure an objective measure of the perceived loudness of audio signals. One of the goals of EBU's input was to create an algorithm that with its simplicity, allows it to be implemented at a fairly low cost.

Mike Kahsnitz, Technical Director, RTW

Too Loud, Man.

Everything always sounds better loud. So mix softly, and play it back for your client loud. Or mix softly and carry a big stick.

David Mathew, Audio Precision

Convoluterator

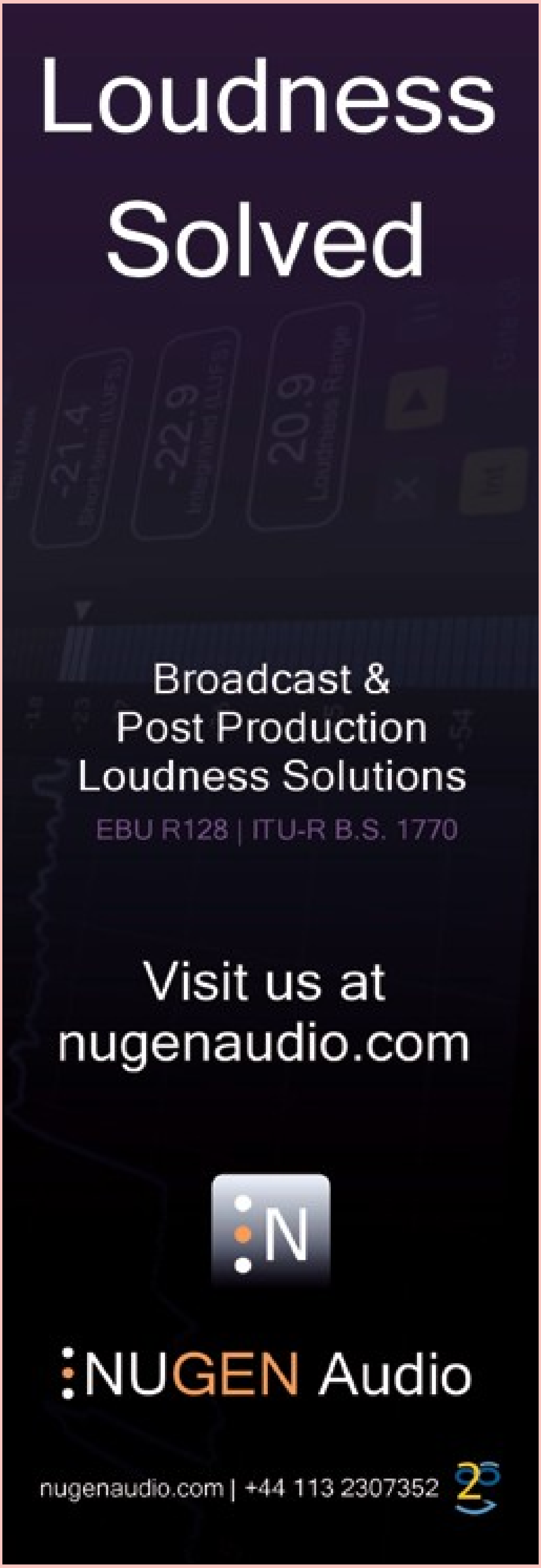
Nearly any convolution reverb can be turned into a powerful multi-effect processor, if used in conjunction with particular impulse responses collections, like Synaesthesia. In fact, these kind of IR libraries can mangle input sounds beyond all imagination: creating evanescent layers, organic textures, innovative tempo-synced effects, turning foley fx into brand new sounds, morphing vocals into complex textures, and producing alter-egos of traditional acoustic musical instruments. A secret weapon for every musician and sound designer looking for new ways of transforming and spicing up his/her music and sounds.

Virtuasonic

Re-Amping

Re-amping can be a great tool for mixing. Finding something special and for a key sound can make a huge difference. I've built up a collection of little amps, speakers, megaphones and guitar pedals that offer me a wide palette of treatments from warm valves through to screaming distortion. Synths, snares, and vocals can all gain a bit of character by paying a visit to an amp or a funky pedal. One of my most useful (and cost effective!) purchases was a £10 Realistic mini speaker from Tandy, which sounds great on vocals and Hammond organs. Of course, there are plenty of plug-ins that offer something similar but there's nothing quite like the sound of air being moved by a speaker.

Simon Gogerly, Producer/Engineer and AM Contributor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the control room

The Control Room is where you listen, interact with clients, contemplate acoustic stuff, and generally get to grips with the studio world…

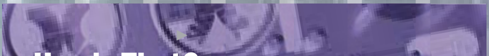
Nice Place

When placing your monitoring loudspeakers in your studio, there are several key points to be taken care of:

- Consider the loudspeaker radiation space
- Remember that wall reflections change the frequency response
- Follow the free-standing placement recommendations
- Exact symmetry produces accurate sound stage imaging
- Angle the loudspeakers towards the listener
- Height and width matters in TV/film monitoring
- Battle room modes

The most common problem at low frequencies is the interference between the loudspeaker's direct radiation and the reflection from the wall behind the speaker. At low frequencies this reflection will be delayed so much as to be in opposite phase relative to the direct sound. Depending on the relative amplitudes of the direct and reflected sounds, a cancellation dip (typically 6-20dB deep) will occur in the frequency response which can reduce the sound quality dramatically.

Terho Savolainen, Genelec Oy



How's That?

For the vocalist who can't hear himself properly in the cans, has uncharacteristic pitch problems, etc.: try flipping the polarity (phase) of the mic or the channel, somewhere pre-headphone send. Sometimes that helps centre and strengthen the perceived foldback in the singer's head. Cancels or reinforces the acoustic signal; affected by mic distance, polarity faults in wiring, current state of catarrh, etc. Use the optometrist's banter: Is this better, or this? This, or this…

If you are concerned about the absolute polarity of the vocal track, you can always flip it back in the mix.

David Mathew, Audio Precision

Very Nearly...

Nearfield monitors are ubiquitous these days but what does the term actually mean? Like most acoustic terms it was 'borrowed' from wave theory in Physics and refers to a point at significantly less distance from the source than the radiated wavelength. This means a speaker sitting 1m away would be 'near' at 100Hz but 'far' at 1kHz. In the nearfield energy does not obey inverse square law and that is apparent with monitors. Bass performance is influenced by any adjacent surface as well as the design of reflex ports and stands. To make matters worse, at 1m the low frequency wavefront area is 13m2. Ears, being small, only capture about 0.05% of that energy, the rest fills the room and becomes reverberation. So do 'nearfields' always sound the same? No way!

Andy Munro, Munro Acoustics & sE Electronics

Future Pluggery

Today, many of the modern consoles and workstations largely use CAT-5 cable, yet we always allow adequate wire management so that any sort of console can easily be integrated into the room at a later date. It's not all plug-ins, and I don't think it ever will be.

Russ Berger, founder of Russ Berger Design Group.
Audio Media, December 2009

Good Freelancing

Good accountancy, good invoicing, good record keeping and archiving, a good manager, and an exceptional ear for talent! Diplomacy is a must, and don't ever be late for sessions. You must deliver on time either on your own or as a team. I, and others, still generally believe the best producers have evolved from being recording engineers after the tape op/assistant route. It's the best way forward if given the opportunity. It allows you to take on board and develop many essential skills over many varied recording sessions, and you learn the required business practices as you go.

Mark Rose, Co-Chairman MPG/Owner Deep Studios

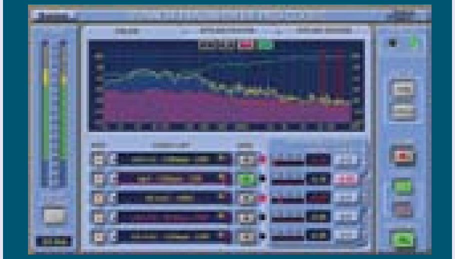
Loudness Monitoring Tip

It's a good idea to use an SPL meter to check your monitoring levels. Most of us listen too loud, both for accuracy reasons and for health reasons. Spend $30 on a Radio Shack SPL meter (the analogue one, not the digital one) and set it for 80/C weighted/slow (you'll understand when you get it). Place the device near you pointing at the speakers, maybe on the other side of your keyboard opposite your mouse (you are using a computer right?). Then play some music at the level you usually play it at. The needle should be dancing between 0 and +6. If you peg the needle you're killing yourself and probably are delivering bass light mixes. If the needle is not moving you're either using a dead battery or you are one exceptional human being with phenomenal self control on listening levels (and you are probably delivering bass heavy mixes too).

A good way to normalise monitoring levels and to deliver consistent mixing results is to use a reliable volume control like the Dangerous Music Monitor ST. First you set a level for a mastered CD in the style you like to work in to hit the magic + 0 to +6 spot on the SPL meter. Memorise that volume knob position. Then play one of your unmastered mixes and set a position for that. It should be quite a bit higher because your mix is not (yet) limited to within an inch of its life like the mastered CD is. Now you have to reproducible mixing positions: one for mixing and one for listening to mastered CDs with the benefit that both will now play at the same SPL level. Only then can you really start comparing your work with the work of others without fooling yourself. Isn't that wonderful?

FAB (puremix.net), c/o PDB Music

TECHNOLOGY FOCUS



Sonnox's recently released Fraunhofer Pro-Codec plug-in enables mix and mastering engineers to audition up to five codecs in real time within a DAW environment. It also eliminates the time-consuming cycle of encoding a mix to mp3/AAC, previewing, tweaking and re-rendering, letting the engineer concentrate on producing an optimised mix during the preview process. It enables the production of optimized mixes, and provides the option to simultaneously batch encode to multiple formats. mp3, mp3 Surround, AAC-LC and HE-AAC are supported, as are such lossless codecs as mp3 HD and HD-AAC. The Fraunhofer Pro-Codec is compatible with Pro Tools, Logic, Cubase, Nuendo, Sequoia and Wavelab. Both Mac and Windows are supported.

www.sonnox.co.uk

Aww, Soffit

In bigger rooms, you start by designing the room to try and increase the effectiveness of the room-speaker combination. One of the things you can do is to minimise the effect of bass reflection in a room by soffit mounting the speakers – build them into the wall. This is done not just by sticking a piece of wall fabric under the speakers but by building them into a substantial wall in a big, heavy box. We then pack the front wall – we use mineral wool, though other people do other things.

The bass end becomes more efficient because it's all going forwards. If you correctly soffit mount a speaker, you've got the early bass reflections under control. And then if you carefully design the distance between you and the walls, you can further improve those early bass reflections.

David Bell, Whitemark Acoustics, Monitors 2010

Base Speaker

There's an awful lot of rubbish talked about high end, really expensive, rubbed-against-the-thighs-of-virgins magnesium-alloy...What you want is a sodding great heavy thing to stand your speakers on – and it's no good putting it on a wonderful speaker stand, wonderfully linked up to a diaphragmatic wooden floor, because that's just the same. Although if your speaker stand is full of lead, it's then going to be quite heavy, so the resonant frequency of the floor membrane it's standing on is going to be much lower.

David Bell, Whitemark Acoustics, Monitors 2010

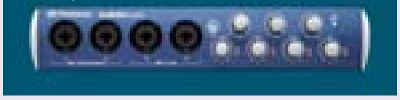
What Directors Want

We always want people we like being around, whose input is going to be a part of it. You want what you want from everyone on a movie: to be making progress. You want people who aren't going to look for problems just because they need attention; you want people who are going to contribute. I feel that the people that we've worked with can deliver whatever it is that we want to do. It's just a question of, 'what do we want to do?' For me, that's what we're always struggling to do: it's not trying to find the people to deliver, it's finding the idea.

David Fincher, Director, The Curious Case Of Benjamin Button, *Audio Media,* December 2008

TECHNOLOGY FOCUS

PreSonus' newly introduced AudioBox 22VSL, AudioBox 44VSL, and AudioBox 1818VSL provide the dynamics processing and EQ of a StudioLive mixer in a rack-mountable USB interface. These new interfaces deliver reverb and delay effects with dedicated effects buses and the same Fat Channel compression, limiting, 3-band semi-parametric EQ, and high-pass filter found in the new StudioLive 16.0.2 mixer. However, the processing is done on your computer using bundled PreSonus Virtual StudioLive software. This low-latency system makes it possible to monitor while recording with real-time effects.
www.presonus.com



Take It Ear-zy

Limit how long you spend on a mix. The longer you spend without a break, the more your ears will get fatigued and you'll actually start making your mix worse as your ears get used to problem frequencies. Set yourself a goal for each session and then give yourself an hour or so to achieve it. You'll probably find you accomplish more than spending a whole day of aimless mixing.

Rob Holsman, Consultant, Jigsaw Systems

Be Elemental

Never try to choose studio monitors based on how good they sound, but rather based on how clearly the elements of a mix come through them. They are tools, and therefore need to be evaluated for how they represent sound. Many speakers are tuned to make music sound better and this can cause serious issues while mixing.

KRK Systems

Room Rate

Aim to spend at least as much as half of the cost of your monitors again on room treatment. Our Genelec monitors are for the most part flat in response, and they can compensate for rooms well (and the DSP versions very well), however you don't buy a Ferrari to run it on a dirt road – so why do the same with your monitors?

Alex Theakston, Marketing Co-ordinator, Source Distribution

Close The DAW

My best quick tip is to avoid DAWs unless you really have to go down that route. They just don't cut it for me (and many others) without a million processing plugs to make it seem like its happening, and then they fail to work properly all of the time. It can seem like a never-ending endless hassle for very compromised audio results IMHO, no matter what rig or AD/DAs you're using. If you are student/tape op, please stop looking at audio all the time... listen to it!

Mark Rose, Co-Chairman MPG/Owner Deep Studios

Beer Ear

Don't drink alcohol and listen to loud music.

The tiny muscles that act as acoustic compressors in your ears get relaxed, and you are in jeopardy of serious ear damage.

David Mathew, Audio Precision

Employ The Familiar

When auditioning studio monitors, chose playback material you are very familiar with, and compare a mix you know well to how it sounds on the monitors. Ask yourself how you might change that mix based on what you hear, assuming it was right to begin with. Try to understand the effect the monitors will have on your mixing.

KRK Systems

Shelfless

Once upon a time there were big consoles to put things on, and that included the nearfield monitors. The channels reflected bass and that fattened the bottom end and the same surface caused mid-range comb filters that reduced mid-range. It was under these constraints that the NS10 became a truism rather than a reference of any great meaning. All speakers react to their immediate surroundings and a monitor system should be measured and aligned for true sound balance.

Try reversing the polarity of one speaker and listen to a mix. If you hear some bass and anything good you have a problem!

Try to give monitors some space to radiate and always form a perfect (equilateral) triangle between them and you.

Andy Munro, Munro Acoustics & sE Electronics

One Is Not Enough

Different speakers and environments will reveal different aspects of your mix, so check your mixes on as many systems as you can – such as your hi-fi or car stereo. I probably spend more time listening to music in my car than anywhere else, and it's one of the best places to make mix comparisons.

Rob Holsman, Consultant, Jigsaw Systems

Working With Talent

This is a never ending process that requires a pool of experience so refined that you must always be expected and able to deliver, no matter what the artist demands might be. It is not easy, and there are times when it can be very frustrating for all concerned.

My view on working with artists these days is that many, many more new UK artists require much more team-work and support than ever before. This is mainly due to the lack of investment funds, and well-publicised piracy losses have created a situation whereby more and more producers and studios are providing the support previously there via A&R funding streams.

In my opinion this has created a positive and creative relationship between the artist and producer/s that has led to some stunning records recently – many of which might not have seen the light of day previously. Long may it continue. All good producers enjoy working with unsigned bands at the very early stages of a band or artist development, it helps both sides to filter their strengths and weaknesses prior to recording any debut album.

Mark Rose, Co-Chairman MPG/Owner Deep Studios

Listen Up

"In the final mix stage, I often monitor through my mixdown track with an L2 limiter to make sure that transients still cut through and that the balance doesn't change too much. I use main monitors to listen to bass and kick balance and general dynamics/energy of the track. Listening very quietly to NS-10s helps to find a good vocal level and to make sure that all instruments have their own space. Having something like a small iPod dock or a mono radio with an aux input also helps a lot to make sure that the bottom end translates well to domestic systems."

Alexander Beitzke, Monitoring Practice Preferences, Monitors 2011

Tri-This

For basic studio monitor placement, you should create an equilateral triangle between you and the speakers, turning them slightly towards you, but aimed just behind you. Also, keep the high frequency drivers as close to ear level as possible.

KRK Systems

Bit-Wise

24-bit digital recording has a very wide dynamic range. Don't worry about the digital noise floor; it is far below. You can safely record with peak levels 20dB down, preserving lots of headroom.

David Mathew, Audio Precision

Don't Get Phased

Signal polarity is important. Relative polarity errors in related signals can cause frequency cancellation, complete signal cancellation, and that weird twisty feeling you get in your head when your speakers are 'out of phase.' Absolute polarity is important, too. Most audio signals are not symmetrical (the human voice is a good example), and sometimes a careful listener can hear a polarity change, even in a mono signal. A singer listening to her own voice in headphones is definitely sensitive to polarity, because there are two paths: electric and acoustic. Ideally, your entire recording/mixing/monitoring chain, including microphones, headphones and speakers, is configured for correct polarity. Check it. There are tools. None as elegant as the EMT 160, unfortunately.

David Mathew, Audio Precision

Best Studio Practice – Top Six

- Punctuality – never be late!
- Loyalty and hard work
- Honesty and diplomacy
- Good maintenance and tech support
- Secure archival all materials and safety copies (take charge of all transferring of materials)
- Don't just walk into and interrupt someone else's session… it's really annoying and a surprise how many studios allow it or don't seem to care (it's not a party!)

Mark Rose, Co-Chairman MPG/Owner Deep Studios

Balancing Act

Everyone knows that you need acoustical treatment in your studio. This of course helps tame powerful first order reflections which makes it easier to mix. But what few realise is that you can actually do more harm to your room than good if you do not balance the absorption.

Think of your room as a 3-way loudspeaker. When you use thin, low density foam, you will only absorb the high frequencies. In other words, you have now turned off the tweeter. You are left with a room that will be mid range and bass heavy. The trick is balanced absorption. When selecting absorptive materials, look at the sound absorption coefficients – not the numbers, but the graphs. This will tell you exactly what frequencies you will absorb. Make sure you also consider bass traps. With balanced absorption in your studio, your mixes will translate better when you move them to another room.

Peter Janis, President,
Radial Engineering Ltd

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on location

On Location is exactly what it says – all those ideas for best practice when you're out and about. It might be a film set, remote Foley and effects sessions, audio journalism, and more…

Limited Appeal

Many portable recorders now come with on-board compression. Compression is often helpful in the field, however it can create some undesirable effects. Compression can make a voice louder and more present, but it will also elevate the volume of background noise. It is often unnecessary to use compression while capturing audio in the field, but one useful way to employ compression is to add hard compression, or limiting, to ensure that your digital recorder does not peak. However, this may introduce "pumping" artefacts on your recorded audio if it is constantly employing gain reduction.

Sean Karpowicz, Product Specialist, GCI-Technologies (Gemini, Cortex, iKey)

Look Forward

Good Spectral Editing software can save your bacon, but five minutes research may make you realise you're setting up an interview next to a building site! Naturally this was learned the hard way...

Alex Theakston, Marketing Co-ordinator, Source Distribution

Backing Track

When you get one chance and have no idea how loud something might be, CYA by making an alternative recording path, maybe 20dB lower than your main path. You may be setting the mic pad, or the preamp level, or the record level lower, depending upon the situation. When that crazy peak comes and completely splatters your track, chances are your -20 dB track will save you in post.

David Mathew, Audio Precision

Nicely Does It

Be human. By simply chatting to people you can find things go a lot more smoothly. And if, like me, you often recording 'things' rather than people, you might find someone who's got a car/bike/budge that makes a great sound and which he or she has always wanted to have recorded for posterity.

Jerry Ibbotson, Media Mill and Audio Media Contributor

Check Your Location and Change What You Can

Whether you're working on a blockbuster or for Radio Norwich, check the environment before you start recording. It's partly about the acoustics of the spot you're in: rooms with bare walls create a lot of reverb and echo while rooms with large windows also let in sound from outside. But it's also about what is making noise about you, even if it's inaudible to the human ear. Fridges hum and can also create an EM-type noise that the mic will pick up and pass to the recorder. Strip lights do the same. Do a sound check first and if necessary (and ask politely) switch things off.

Unless you're in a cryo lab, most people won't mind their fridge being off for a few minutes.

In a perfect world, every recording would be done in a small room lined with bookshelves to soak up the reverb. And no windows. Or fridges.

Jerry Ibbotson, Media Mill and Audio Media Contributor

The Only Rule Is…

There are no hard and fast rules – be aware that what works for this script, today, with this Director, on this location, may well be completely irrelevant tomorrow, somewhere else, with a different Director, with a different script.

Simon Bishop, Production Mixer/Recordist, Audio Media Feb 2010

Never Forget

The mantra of any location sound recorder should be to always, always, always...bring spare batteries.

Alex Theakston, Marketing Co-ordinator, Source Distribution

What An Atmos…

Shoot a buzz track. Try and shoot a buzztrack, atmos, or room tone, in the same location as you shot the dialogue for the scene, as soon as possible after, or even whilst you are shooting, the sync shots for the scene. Buzztrack is like audio glue – it allows the post production team to glue together all sorts of location misdemeanours, and to 'smooth over' all sorts of otherwise jarring edits and transitions.

Simon Bishop, Production Mixer/Recordist, Audio Media Feb 2010

Share The Love

Take food. Not just to stop your stomach rumbling but as a means to bartering. It's amazing how much extra productivity you can get from a rolling-road engineer by the simple application of a Mars bar.

Jerry Ibbotson, Media Mill and Audio Media Contributor

Body Popping

For wireless microphone placement on actors, remember to keep the transmitter antennas away from direct contact with skin. Use large shrink tubing, plastic aquarium tubing, or a foam pad to insulate the antenna from skin. Mic placement can be tricky in order to make the microphone invisible, and avoid wind noise and clothing rustle. Keep a well-stocked kit of surgical tape, wind abatement materials, sharp small scissors, and microphone mounting hardware. Don't forget to practice and experiment with lav mic placement during your down time. With any wireless microphone use, frequency coordination is key – have a plan A, B, and C ready to go.

Karl Winkler, Lectrosonics

TECHNOLOGY FOCUS

Calrec, high-end broadcast console manufactuer, recently introduced its Hydra2 Organizer (H2O), a brand new management system for its Hydra2 network router. The system allows the user to control the Hydra2 network independently from any console control surface. Users can set up routes and configure access rights to all desks on a given network, as well as label I/O boxes and ports for ease of identification. It also offers the ability to arrange ports into folders making them quicker and easier to locate.

The new software is browser based, allowing network access from a laptop or PC, and is compatible with Windows, Linux, or OSX.

H2O is especially advantageous for Calrec's clients who own large, multiple-studio complexes which may be rented to rival companies at different times. Using access rights it is now possible to render studios completely invisible to users in other studios rented to client A and vice versa. This gives the customer the flexibility to utilise their network in a manner they could not previously using a single operating system.

www.calrec.com

Transformers 4

There is nothing like a transformer for isolation, and getting rid of some nasty ground-loop buzz. You can even transformer-isolate AES3 digital with the right transformer. Carry several, in whatever configurations and impedances are necessary. Buy quality, such as Jensens, with Faraday shields. Put them in boxes with ground-lift switches.

David Mathew, Audio Precision

Mic All

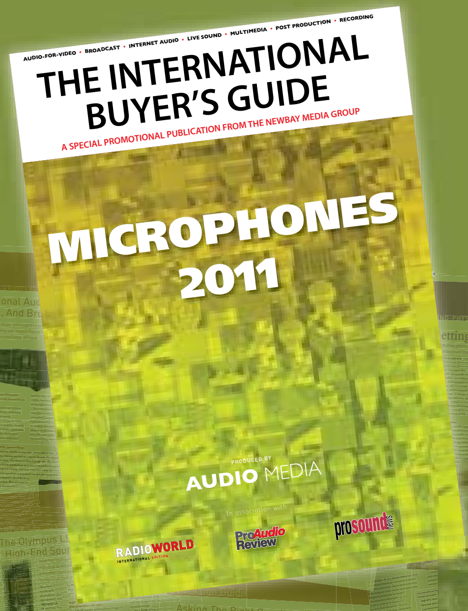
My technique outside is to put radio mics on everyone. Everyone who is likely to speak, even sometimes if they don't speak...I put radio mics on and try and boom what I can. If you can get the boom in, great. If you can't, use the radio, and do a blend of the two.

Martin Beresford, Production Sound Mixer, Submarine
Audio Media, April 2011

Joined Up

Variation is vital or the realism spell gets broken very quickly. That's why we spent a lot of time experimenting with the sound of the wind, creating a dynamically changing envelope that enables a mere 28 seconds of assets to cover 14 hours gameplay. I defy anyone to hear the joins!

Jethro Dunn, Audio Designer, Codemasters
Audio Media, December 2009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Baby Boomers

For the banshees, I recorded babies of all sorts. Oftentimes I find that when you hear newborn creatures, they make sounds that are so unfamiliar; we rarely hear those sounds. Literally, we recorded baby swine that were days old.

Christopher Boyes, Sound Designer, Avatar
Audio Media, January 2010

Shoot The Lines Off

If at all possible, and if the Director and actors are up for it, try and cover the lines off (lines spoken by actors who are not in this particular shot) whenever you can. These can be an invaluable source of natural sounding alternative 'takes' of lines that the post production team may be needing.

Simon Bishop, Production Mixer/Recordist,
Audio Media Feb 2010

Boom, Boom

Over the top, or up and under? Remember at all times that you don't just have to put the boom mic in over the top – there is a whole world of 'recordability' underneath. It sounds quite different, down there in the underworld, but you could boom the whole scene that way and make all the shots sound similar.

Simon BIshop, Production Mixer/Recordist, Audio Media Feb 2010

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Line Dancing

Take great care with dialogue overlaps. Sometimes, and in some situations, and some shots, it can be just fine for the actors to overlap their dialogue. Be aware though, that once you get into the single shots (just one actor infilling the frame), it can be a post production nightmare if the actors still overlap. The truth is that they almost never overlap in the same place, meaning that the Editor has an awfully difficult task finding somewhere to get the scissors in. Discuss this with your Director, and form a strategy for each scene/ shot.

Simon BIshop, Production Mixer/Recordist, Audio Media Feb 2010

on location

Boat Recording

I had a Schoeps MS pair on the bank, and the Production Sound Recordist (Chris Munro) was out on the jetty – the idea was that he'd get the water slap with a boom. Then we strapped a Sound Devices 442 on each boat with a DPA 4062 in a condom on the rear of the boat, another two inside, one on the helm, and another right in the bow. Chris gave us an SM58 and we stuck it on a magic arm and put that over the engine. We had pretty much the same set-up on the RHIB as-well.Towards the end of the day, we had Dave [David Mackie, Assistant Sound Editor] in a safety boat, and we got the driver to do circles around him. Because he was creating a lot of waves he was able to bounce off his own waves, so we got the slaps and lands.

Martin Cantwell, Sound Designer, Quantum Of Solace, Audio Media November 2008

Be Equipment Agnostic

It's great to have a favourite bit of equipment; something that you swear by instead of swear at. But it's also good to keep a totally open mind about what to use when out and about. Over the last couple of years I've recorded around 200 vehicles for different racing and driving games. One thing I never imagined using out in the field was my AKG D3000 vocal microphone; the sort with the triangular section intended to be hand held or used in a music studio. But it can handle stupidly high SPL levels, is really sturdy and has a crisp, sharp sound; perfect for placing near the exhaust pipe of a V8 muscle car. Who'd a thought it eh? Likewise Rycote Undercovers – small sticky pads meant for attaching personal mics under clothing – are great to tacking dpa 4061s into the engine bays of cars or enormous trucks. Not their intended purpose, but they work brilliantly and peel off afterwards. Also: Condoms can be useful at keep mics dry, though best of luck claiming them back on expenses.

Jerry Ibbotson, Media Mill and Audio Media Contributor

Catchin' Sync

Is there any sync sound in the shot? Look at the rehearsal, and work out what dialogue is actually sync sound – it may well be that there are six actors in the shot, but many of them might be tiny (in the shot), or the camera only sees the backs of their heads. Weigh up which are the important lines to 'get' in each shot, and concentrate your efforts on getting them recorded well.

Simon Bishop, Production Mixer/Recordist, Audio Media Feb 2010

TECHNOLOGY FOCUS

In an industry where knowledge is key and the right tool for the job often makes the difference between an ordinary production and a great production, one place many pros turn to is the services of Richmond Film Services, specialists in sound equipment hire for over 25 years.

Richmond has over 2,000 items available for hire and maintains its own extensive workshop facility, which not only keeps the gear in top condition, but also provides cable repair and construction services, and offers an equipment repair service to Richmond customers.

Richmond Film Services now has 15 staff, covering roles as diverse as office staff and dispatch crew, and the comprehensive website provides an extensive browsable equipment list so you can peruse what's available at your leisure.

The company also sells accessories, parts and equipment. A small quantity of its sale stock is listed in the online price list, but it can deal with any request for equipment, and frequently sources parts from around the world.

The Richmond dispatch crew deliver equipment daily within the M25, but the company also delivers throughout the UK via overnight courier.

www.richmondfilmservices.co.uk

Tool Selection

Poles sound more natural, radio mics sound more sterile – mics on booms sound far more natural than radio mics hidden on people's clothes (very one dimensional in that everybody sounds the same). If you can cover all the shots for a given scene using booms, then you can probably work faster, avoid clothes rustle, and get a much more natural result.

Simon Bishop, Production Mixer/Recordist, Audio Media Feb 2010

Turn Your Phone Off

I was once asked to do some post production audio work on a corporate video when the camera person had clearly had their mobile phone tucked into their pocket, still switched on. We probably all know the sound of a mobile/cell phone sending out those little pulses to tell the network where it is but when you've heard them running all the way through an edit, you want to cry a little. Well, a lot, in fact. Going to silent mode isn't enough. Turn it off.

Jerry Ibbotson, Media Mill and Audio Media Contributor

Got Wind?

Buy a windshield, even for your pocket recorder. That's one way to improve any recording by several hundred per cent.
Jerry Ibbotson,
Media Mill and Audio Media Contributor

An Alternate Angle

Shoot a sync sound wild track. There are some situations where you can see the causes of the background noise/s, but they might not be there for all of the shots in the scene (i.e., not constant). An example might be filming a conversation across a petrol station forecourt. The shots on one actor (looking towards the road) might include passing cars, whilst the reverse angle (towards the paystation) might include no traffic. If you cut from one shot to the other the background noise may well 'jar' in one's ears. A solution might well be to run an extra mic that records only the passing car noises, clean of the dialogue. This track can be used with the dialogue tracks, in order to continue the transitions over the edits from one camera angle to the other. Post production will love this 'get out of jail free' card.
Simon Bishop, Production Mixer/Recordist, Audio Media Feb 2010

Separates

Using a separate hard drive is the quickest way of
getting the audio material into your workstation to re-
mix it. Less time doing the mechanical transfer equals
more time for the creative mixing process. It also means
that the actual recording device doesn't necessarily
need to be removed from the location in order to access
the audio files. This enables a sound designer/record-
ist to make daily evaluations, edits, and mixes of any
captured location audio, saving valuable time during
post production stages.
JoeCo

ADR Assist

Many of the directors I work with insist on using original sound. Of course, there are occasions when, for whatever reason, it is impossible to get usable dialogue. In these situations I usually try to do some location looping by getting Quicktime files from editorial to use with my portable Pro Tools system for ADR. These can often be useful, as they can be recorded when the scene is still fresh in the actor's mind and not at some point months later, when they may be playing a different character or another project."
Chris Munro, Sound Recordist
Audio Media, January 2010

Buzz All-Din?

Shoot a buzztrack first. Sometimes you just have to carry on shooting the sync dialogue, whilst there is an unwanted background noise occurring that is unstoppable. Take the hit and go with it – record a buzztrack of the offending noise, and give the post production team the opportunity to play the scene with the background noise in. This may well be a better option than to have some shots done with the background noise in, and others without.
Simon BIshop, Production Mixer/Recordist, Audio Media Feb 2010

Dress For It

Any fool can be uncomfortable; I think that's a saying from the Royal Marine Commandos. Or it might be the Brownies, I'm not sure. If you get cold and wet (or hot and sweaty) you're more likely to do something wrong. It's too easy to think of every possible microphone you might need but forget to pack something to keep yourself dry and warm. That said, if you're heading somewhere quiet and you know that you might have to move about, recording wildlife sounds for example, don't pull on your Berghaus-type skiing jacket. That hi-tech waterproof material makes a terrible rustling sound, certainly loud enough to be picked up on mic. Wearing one means you can't move a muscle without fear of ruining the recording. Try a fleece material instead as it's acoustically much deader. Likewise avoid certain types of fancy-pants-go-anywhere-all-weather-trouser. Or cords.
Jerry Ibbotson, Media Mill and Audio Media Contributor

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Let the Quiet Stuff Stay Quiet

When you're out recording quiet audio, particularly ambient sounds, it's easy to fall into the trap of cranking up the levels. It becomes second nature to seek out the strongest signal possible; to hit the right point on the meter. Sometimes end clients even insist of every sound, no matter what, being at the same level. But what's good for a loud voice or a thundering piece of machinery won't be right for hushed footfalls in a library or the quiet chirps of birds in the trees. Turn up the gain too high and you may end up with hiss from your pre-amps, particularly on more budget hardware, as well as audio you simply don't need, placing the listener actually up a tree with the birds.

Use your ears (and a decent set of headphones) to help set the level, rather than relying on a meter. It's unlikely the finished audio will ever be played back above its "natural" level, so this should be where you record. The sound should be at a natural level.

Jerry Ibbotson, Media Mill and Audio Media Contributor

Make Time For Wild Tracks

Without overstaying your welcome with the Director and crew – try and get as many Wild Tracks, atmosses, and wild dialogue lines as you think might be needed to make the scene cuttable. Make a list of what you need, and let the first Assistant Director know in advance as early as possible as to what you might need, and what the order of importance is. It may well be that they have no time for any WTs, but you can but ask. Don't take offence if you are given no WTs, remember that a regular TV drama crew can cost anywhere upwards of £25 per MINUTE to keep on the road, so it is perfectly possible that your WT is 'simply not worth it'.

Simon Bishop, Production Mixer/Recordist, Audio Media Feb 2010

Pretty Pattern

When recording (interviews, field recording, etc), it's always important to consider the optimal microphone pickup pattern. Cardioid patterns are the most effective at isolating the sound source and eliminating background noise. An omni-directional pattern will capture all sound in a 360° field, which is great for many uses, but it can also introduce unwanted background noise. Figure-of-eight patterns capture sound only on the left and right side, while rejecting sound from the front and rear of the microphone. This could be useful for a stereo image or for interviews (the interviewer speaks into the left side, the guest speaks into the right side).

Sean Karpowicz, Product Specialist, GCI-Technologies (Gemini, Cortex, iKey)

Get Your Kit Together

Yes, this sounds obvious but it's easy to assume that your key equipment is in the bag/case/pocket simply because that's where it always lives. But life's not always so predictable.

I remember going to record a rally car several years ago, only to find an audio team from a rival company, based in Sweden, were also there. It turned out that they'd flown in from Stockholm but had managed to leave their microphone windshield behind. Here they were in jolly old England on a pretty blustery day with nothing to cover their mic. Chances are their sound guy swore it had been in the kit bag the night before.

Their producer probably did a fair bit of swearing too, when they arrived back in Sweden with a totally useless recording.

It's far better to be a bit retentive and check your bag three times before you jump in the car, than arrive on location and find you've left all your mic leads on the desk.

Jerry Ibbotson, Media Mill and Audio Media Contributor

Small Can Be Beautiful

In the past few years there's been something of a revolution in the world of recording devices.

I'm not so much talking about the top-end location recorders, though there are some stunning new machines coming out all the time. I mean the type that can slip into your jacket pocket and be taken out and about on the off-chance that you might find something worth recording.

Three years ago, when I was testing the Marantz 620, a recorder the size of a fag packet, I decided to take it with me on a train journey. As it happened, a magnificent steam train pulled up on a neighbouring platform at York.

The Hogwarts Express no less (I kid you not). The Marantz may not have been my first choice to record something like this but it did a brilliant job, including getting some lovely "toots" of the whistle, thanks to a bit of sign language aimed at the obliging driver. Many of these devices can handle 94K 24Bit recordings and are capable of ridiculously good quality. And there are times when a recording on a hand-held is better than no recording at all.

Jerry Ibbotson, Media Mill and Audio Media Contributor

Don't Play Back in Situ

This may not always be possible of course, but it's a good tip I was given when I first started in radio back in the Jurassic period. If you're recording dialogue or speech with background noise, playing back your recording in that exact spot won't give you a proper idea of how clear your voice is. Even with a decent set of headphones, the "live" background noise will work its way into your ears as you're listening to your recording. The result is that you might think you've got a great interview or line of dialogue when in fact you haven't. Yes, logically it should be the other way round but I've had cases where, after getting back to base, it turns out the voice is hardly audible above the environmental sound.

Find somewhere quieter, even if it's just another room or a cupboard, and listen to it there. Better to re-do your recording with the mic a bit closer or in a different spot, than end up with something unusable.

Jerry Ibbotson, Media Mill and Audio Media Contributor

TECHNOLOGY FOCUS

Sound-Link is a UK-based distributor and dealer that specialises exclusively in microphones for acquisition, professional quality microphone preamplifiers, room & speaker calibration, monitor controllers, and reference-standard monitor loudspeakers.

Soundlink believes that whatever creative technology you use for recording and mixing, you need to be sure that the acoustic sources you acquire are not compromised, and that you can listen accurately to your work to ensure that you always deliver final mixes free from the fingerprint of your listening space.

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Its eclectic selection of what it believes to be the world's finest professional audio products includes:

- Microtech Gefell microphones (formerly Neumann Gefell), with a full range of LM and SM microphones. The legendary Neumann M7 capsule is as popular today as ever in the range of tube microphones.
- Musikelectronic Geithain Active Reference Monitor Loudspeakers, which have the unique cardioid bass emission characteristics that minimise the excitation of room modes, and use concentric point source drivers with superb time-alignment characteristics.
- Grace Design microphone preamplifiers, monitor controllers and precision microphone mounts, from Boulder, Colorado.
- Trinnov Audio, world leading professional room and loudspeaker correction technology, with optional modules for stereo, surround and Loudness metering for broadcast pre- and post-production to meet the ITU 1770 & 1771 requirements.

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on stage, on air

It's everything live – from the stage to FOH, and onto the airwaves. This high pressure environment requires some resourceful thinking.

There's A Place For It

Carefully consider personal mic position. Where you put the mic in relation to the mouth can make a significant difference to the sound. Too close to the mouth and you'll suffer from exaggerated dynamics, an unnatural sound, and the risk of capsule overload. Too far from the mouth and you'll pick up more room than voice, making gain before feedback a potential issue. Also, make sure you have a plan in place to make sure it stays there. Often the slightest change in mic position is enough to change the tone of a vocal substantially. Although surgical staples are not endorsed by Equity, a liberal quantity of tape, elastic, and wig grips can help to ensure the mic stays firmly anchored.

Gareth Owen, Theatrical Sound Designer, Audio Media Feb 2010

Transmitter Placement

If you plan on using a beltpack transmitter, placement on the body is important. Generally, clip it to the belt over a rear pocket for men or onto the rear waist of a skirt for women; then cover it with a jacket. Make certain the antenna is not in contact with the presenter's skin, as this may negatively impact RF (radio frequency) transmission. Next, the receiver audio level should be set properly for whatever is following it – usually an audio mixer.

Karl Winkler, Lectrosonics

Cue One Ready

Set up your system first – make sure that the sound at the mixing desk is representative of the sound in the rest of the room. There is no point busting your gut to get the vocals sounding right at the console, only to discover that they sound rubbish everywhere else.

Gareth Owen, Theatrical Sound Designer, Audio Media Feb 2010

Light As Air

Over at the drums (on the Green Day tour), a Telefunken M216 can be found overhead, placed on a lighting stand put into service to hold mics instead. That's not the only makeshift miking arrangement, however; all the mic cymbal clamps were made out of parts found at truck stops. "It's for the truckers' aerial antennas that clip onto their rearview mirrors," Lemoine explained. "It's the same thread pattern as the microphone clip, so I got a bunch of them in a truck stop and it works perfectly.

Don Veca, Audio Director, Dead Space
Kevin Lemoine,
FOH Engineer for Green Day
Audio Media, December 2009

Theatre Voice: What's The Use Of Wond'rin'?

Have a clear goal. What are the parameters of the show? Are you aiming for vocals that sound natural and un-amplified? Does the Director want a close mic'd 'on the TV' sound? Is the Musical Supervisor an old rock and roller who likes punch and proximity? Knowing these things before you start a six-hour sound check can save you a whole load of grief in the long run.

Gareth Owen, Theatrical Sound Designer,
Audio Media Feb 2010

Be Prepared

Make sure all backup wireless transmitters are set to the correct channel before the show to ensure quick guitar and transmitter changeovers.

Don Boomer – Wireless Sales Engineer, Line 6

on air, on stage

One, Singular Transducer…

One of the great skills of mixing a musical is the ability to line-by-line mix. This is where the sound operator follows the script and pushes the mic faders up and down in relation to what the cast are supposed to be saying at any given time. This theoretically means that during a dialogue scene there is only ever one microphone on at any given time. Dramatic improvements in your vocal sound are possible here as you end up with only one omni-directional microphone picking up the sound of the room, PA, monitors, and stage, rather than forty.

Gareth Owen, Theatrical Sound Designer, Audio Media Feb 2010

Gain Vs. Trim

When using a digital console and wanting some of that warm colouration, turn up the analogue gain, and back off the digital trim to retain a useable gain structure through the console.

Richard Ferriday, Brand Development Manager, Midas and Klark Teknik

The… Right…
De…. Lay

Calculating delays in air is easy… The speed of sound is around 343m/s, which is conveniently close to 333m/s, so sound travels roughly 1,000m every 3s, or 1m every 3ms.

Simon Woollard, Product Specialist, Test & Measurement, Prism Sound

TECHNOLOGY FOCUS

Sennheiser's 2000 series of wireless microphones and in-ear monitor systems is a firm favourite for theatre applications. The new Channel 38 compatible 2000 series GBw range variant tunes between 606 and 678MHz inclusive.

At the heart of the 2000 series is a true diversity receiver, available as a 19-inch rack mount unit with single channel (EM 2000) or twin channel (EM 2050) design. With multiple UHF frequency ranges, each with a switching bandwidth of up to 75 MHz, the range offers a high level of flexibility.

The system saves time during set-up by automatically synchronizing frequencies via an infrared interface. An integrated antenna loop-through enables systems of up to 16 channels to be set up without an external splitter.

www.sennheiser.co.uk

AM Be Gone

I was in Mexico city and had a big problem with local AM radio station interference, and the only place the interference could get in was the stage patch. It was even present on vocal mic inputs. The local PRG PA guys showed me a trick I had never seen before. If you put an extra mic lead, still coiled up, at the source end of the originally run lead, the interference disappears. I thought this was a cool thing for everybody to know. I'm sure most of you have been there with this problem or will be.

Big Mick Hughes, c/o Midas and Klark Teknik

Give Voice A Chance

If you are short of time doing a soundcheck or setting up the PA – for Pete's sake don't start with the drum kit (AKA 'shed-building'). Get the centre/main vocal mic up and EQ it for monitors and FOH till it's loud and clear. No one's going to thank you for a stunning drum sound while the artist's voice/lyrics remain buried!

Leon Phillips, Product Manager, Allen + Heath

What's My Motivation?

Use your ears, not your ego. Does a vocal actually need particular EQ or dynamics? Or are you just putting them in because there are people watching over your shoulder who think you should be? Keep EQ as shallow and as narrow as possible. If you find several narrow cuts very close together, try replacing with just one cut wider Q. Don't be swayed by pretty visuals on digital consoles – use your ears to EQ and don't worry about what it looks like on the screen.

Gareth Owen, Theatrical Sound Designer, Audio Media Feb 2010

Fitting Personals

Spending a few extra minutes properly fitting the microphone eliminates problems during the presentation. Position the lavaliere microphone on the chest 8-10 inches from the mouth. Secure the cable inside the shirt or jacket with tape to minimise cable noise. Always point unidirectional lavalieres directly at the mouth – thoughtfully designed clips should make this easy for you on any wardrobe. Position the earset mic roughly 0.25 inches behind the corner of the mouth when the speaker smiles. Any closer may result in breath pops. Use a collar clip to route the cable into the shirt while leaving some slack to facilitate head turning.

Omer Inan, Countryman Associates

Group Hug

If you have the kit available, bounce the performer vocals through different group EQs. Try to have a different group EQ for girls, boys, handhelds, etc. You will find that many of the offending frequencies in a vocal sound are common across all twenty girls. These can be notched out in the group, leaving channel EQ for dealing with specific individual problems.

Also consider that the frequency you are hearing could be common across the system and you just didn't notice it during band sound check. The system EQ should be your port of call here.

Gareth Owen, Theatrical Sound Designer, Audio Media Feb 2010

Sub Combos

Dave Rat developed two new subwoofer combinations (for the Blink-182 reunion tour) with Scott Sugden, L-Acoustics' technical support person. The imposing Vortex arrangement, used in arenas, stands almost like a tiny Stonehenge, with four stacks of three SB28s set up in a square, complete with floor frame and trucking straps around them to keep the stacks from blowing apart. Working best away from walls, each stack blasts into the side of the next stack, except the outermost one which faces the audience; by using time offsets ranging from three to 7.5 milliseconds, Rat found the configuration can provide increased LF coverage to arena sides anywhere up to 270 degrees, while getting cancellation on stage.

Back In A Blink, *Audio Media*, January 2010

Dominant Strings

Jerry's guitar is so massive – melodically, it's the whole band besides the vocals. Will's tone, which is captured by a Palmer PDA-09 and a Heil PR 30, is a little more of a rock and roll tone, while Jerry's tone errs more on the side of a metal tone. Will is straight up the middle when he plays, but Jerry is really wide stereo, because in 50 or 60 percent of the songs, it's just one guitar. Jerry has four guitar lines, two Palmer PGA-05 lines and two Heil PR 30 lines, and those combine to make one guitar sound. That one guitar sound gets panned to one side, and that same combined guitar sound gets panned to one sound and delayed. It's an age-old trick, but it sounds huge.

Tom Abraham, FOH Engineer, Alice in Chains
Audio Media, February 2010

Wireless Wisdom

Wireless microphones have more and more become the responsibility of the monitor engineer. It is important to understand antenna placement – line of sight to the talent is best, which usually means getting the antennas up above head height. Understand cable losses – you ideally want unity gain between antennas and receivers. Only use an RF amp if you have more than 4dB of loss through your cable – any gain stage can add noise and potential intermod problems. Frequency coordination is critical for flawless performance. There are software packages available from free to about US$600 that help a great deal in accomplishing this goal. Have a plan A, B, and C, and be ready to adjust to any changes at a moment's notice.

Karl Winkler, Lectrosonics

Compress To Impress

Rather than just being useful for 'level housekeeping', compression has much more musical use than it is often credited for.

Ben Hammond, FOH engineer, The Blackout. C/O Audio-Technica

Balanced View

If your cable runs are only a few metres long, unbalanced versus balanced audio doesn't make a lot of difference, providing you're careful to avoid earth loops, which well designed equipment will help you achieve.

JoeCo

Keep It Real

Make sure you are EQ'ing the right thing. Before sound check, make sure any channel or group dynamics processors are switched off, particularly any dynamic EQ or compression. Once you have a vocal sound that works tonally, then you can add compression and dynamic EQ to move it from good to great.

Gareth Owen, Theatrical Sound Designer,
Audio Media Feb 2010

Theatrical Auditions

Get the sound right at source. There are lots of different types of miniature microphones. If you have the resources, try different mics on different cast members to see if they sound better with any particular make or model. The mics themselves come with different lengths of caps to adjust the high-end presence. Experiment with these before jumping for the EQ.

Gareth Owen, Theatrical Sound Designer,
Audio Media Feb 2010

Wireless Gain

Proper gain structure is just as important to a wireless microphone setup as it is for any other element of the sound system. Start with the transmitter and set the gain so there is adequate modulation level (the audio meter shows good movement).

Karl Winkler, Lectrosonics

APOLLO, FROM CALREC.
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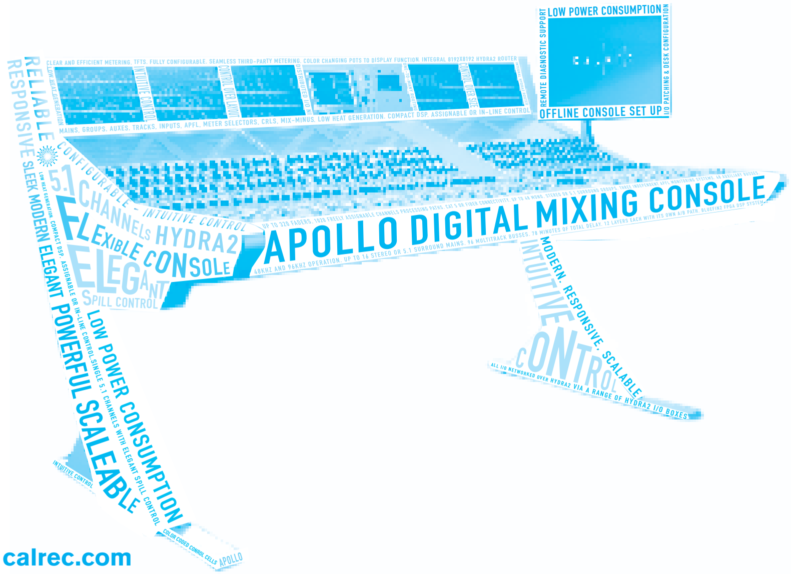

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The world's most successful broadcasters rely on Calrec consoles.

Apollo is the first of Calrec's new generation.

APOLLO

Big Squeeze

Rather than just being useful for 'level housekeeping', compression has much more musical use than it is often credited for.

Everything starts with carefully chosen microphones and placement of course – and obviously the right source sound is of paramount importance. Don't stand at front of house endlessly hacking at the EQ; with the right mics, a well-tuned PA, and a good stage set-up you should be able to dial in your gains, push the faders, and be 90% of the way there.

Compressors' attack and release controls hold the key to the BIG drum sounds we're all now accustomed to hearing. Using these controls to shape the sound can create an illusion of power in your mix, rather than having to over-EQ and push things hard resulting in a loss of headroom.

The tools we have at front of house are sweeteners, not a back line tech's 'get out of jail free card'.

Ben Hammond, FOH Engineer, The Blackout,
c/o Audio-Technica

Dial 0800 PA

Everything starts with carefully chosen microphones and placement of course – and obviously the right source sound is of paramount importance. Don't stand at front of house endlessly hacking at the EQ; with the right mics, a well-tuned PA, and a good stage set-up you should be able to dial in your gains, push the faders, and be 90% of the way there.

Ben Hammond, FOH engineer,
The Blackout. C/O Audio-Technica

Vocal Trick

For vocals I always use a Manley VoxBox. Not only does it have a great pre-amp, compressor, and EQ, but what makes it so stand out is its frequency-dependent compressor. For live sound this is a huge advantage. You can compress only the 2-3k regions in the vocal through the PA, so when you mix loud, instead of the compressor becoming more aggressive, the more you compress, the softer it gets – and your voice is still where you want it to be in the mix.

Patrick Demoustier, FOH Engineer
Audio Media, May 2010

iLive Extra

iLive Mixing System: If you are called on to provide broadcast mic splits and don't have additional active/passive stage-box outputs, you can add in a second or third MixRack fitted with <64 XLR outputs that can be set to be duplicates of the original mic preamps. Okay its line level, and the gain can be locked down on the master console. The inter-rack split can be done using any common medium (EtherSound, ACE, MADI, Dante) with long cable runs.

Leon Phillips, Product Manager, Allen + Heath

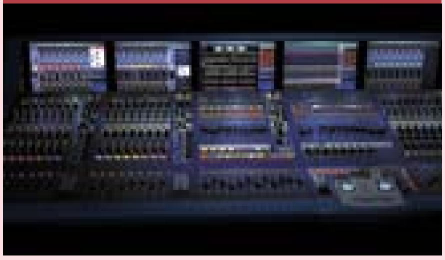
TECHNOLOGY FOCUS

Recent Midas consoles incorporate VCA and POPulation groups as a method of organising the number of controls inherent in a digital system capable of vast channel counts and extensive processing features. Rather than attempting to make all of these controls physically available at the same time, Midas' approach encourages the development of a 'Mind Map' of the system.

At the heart of any Midas control centre, VCA faders provide primary mix control of multiple channels. This mixing approach provides access to all channel faders belonging to any of the VCA groups at the press of a button. VCA faders contain all of the channels that they control, making it simple to find individual channels.

User-customised POPulation groups can contain any combination of channels that you want to accesses instantly at the press of a switch. Rather like a VCA without a fader. This workflow approach is applied to every area of the control surface, ensuring ease of use and fast access to all controls.

www.midasconsoles.com



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Boom In The Room

The cast microphones are DPA booms hidden in the hair. We're using them so we don't have to use tape. Something a bit different. They're rigid, and we don't have to put tape on that keeps coming off. Because of the rigid microphones, we can ever so slightly bend capsules off hair and they stay like that.

Russell Godwin, Sound Operator, Hairspray UK National Tour
Audio Media, June 2010

Dress Rehearsal

In theatre, avoid hats like the plague. The costume designer is your best friend. Or if they aren't, they really need to be. Hats on actors' heads, particularly hats with large brims, are the quickest and easiest way to destroy any chance of a good vocal sound. As mics are often hidden in the hair, the brim of a hat creates a cave type sound over the top of the mic. You can EQ your way out of this but its never pretty. If you have to deal with hats, try to get the mic as far out from under the brim as possible.

Gareth Owen, Theatrical Sound Designer,
Audio Media Feb 2010

Personal Mic Choice

An investment in a quality mic pays handsomely in terms of performance and product durability. Flat frequency response delivers the most control and the least feedback, particularly with the automated mixing systems deployed in today's presentation venues. For lavaliers, field-adjustable high frequency response helps ensure a high level of speech intelligibility. For earsets, look for one that's small, lightweight, resistant to perspiration, and comfortable so as not to be distracting during use.

An omni-directional microphone tends to be more forgiving in terms of placement, offers flatter frequency response, and is generally easier to use. However, a unidirectional mic (hypercardioid/cardioid) provides more isolation, allowing placement farther from the source. For a unidirectional lavaliere, go with a hypercardioid, and carefully check its off-axis performance to avoid degraded tonal quality when the head turns.

Omer Inan, Countryman Associates

ADDA Bit

When using external analogue inserts on the input channels of a digital mixer, set the console's delay management system to apply the additional latency of a second AD-DA conversion to all of the other input channels – this keeps all the audio perfectly in phase.

Richard Ferriday, Brand Development Manager, Midas and Klark Teknik

Meet The Cast

Know what the cast of a show sounds like before you mic them, because everyone's voice is different. They have different accents, different inflections, different tones, different timbres, especially when they are acting. Before leaping in with the EQ, make sure you know how each individual member of the cast sounds naturally. Talk to them beforehand – any inane old subject will do – but take note of oddities in their voices. It can save you a whole load of grief in the long run.

Gareth Owen, Theatrical Sound Designer,
Audio Media Feb 2010

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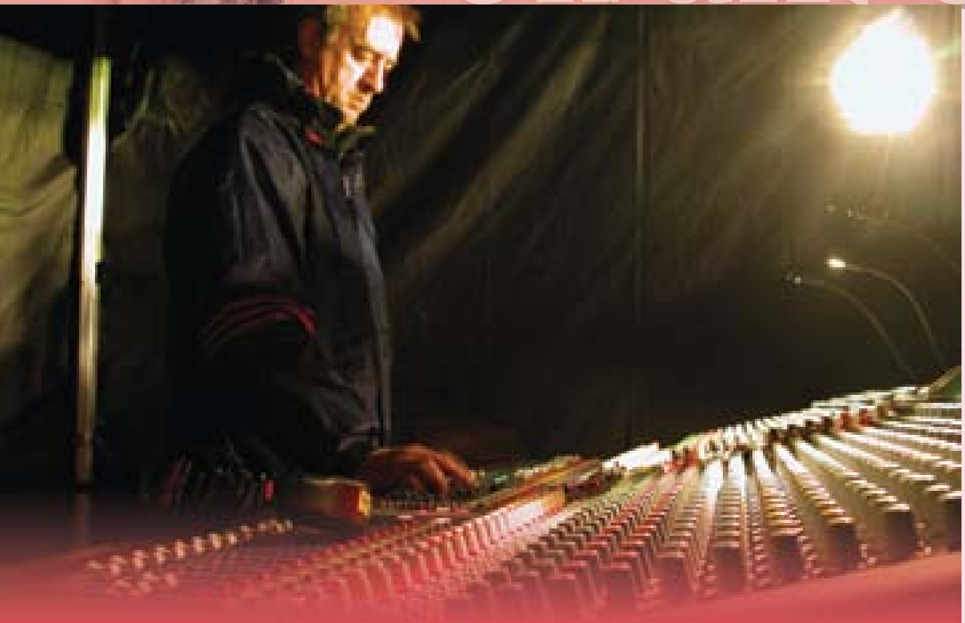

Bass

I don't want to put too much bottom end in the PA when I tune it, simply because I never want to be pulling bottom end off a kick drum if I can help it. I always want to be boosting its lows about 6dB rather than cutting low frequencies out. To make sure of this, I always balance my PAs to ensure there's not too much sub content. That way, if the bass is too subby, it doesn't automatically then follow that the PA is too subby. If it did, I'd have to start ripping bass out of the system, and the results are nowhere near as musical.

Bruce Johnston, Live Sound Engineer, *Audio Media* October 08

Camera Coms

When integrating a partyline intercom with a camera's intercom, the best solution is, without exception, to access the intercom circuit as a four-wire circuit and then use one of the 2-to-4 wire interfaces to convert to the two-wire partyline, much like Clear-Com's EF-701M (single channel) or the IF4W4 unit (four individual channels). When ordering a new camera, plan ahead and select a camera with a four-wire intercom connection. Most higher-end cameras provide this as standard or offer it as an option. On lower cost cameras, a four-wire connection is frequently not available. If a four-wire connection to the camera intercom is not available, the next best choice is to interface to the headset connection on the camera's CCU/DCU.

Judy Cheng, Director of Marketing, Clear-Com (an HME Company)

Three Times

If it's important, triple-check. Double-checking is never enough.

David Mathew, Audio Precision

Super

Always wear a long black cape when mixing at festivals. It keeps you dry, and, If you're not using a Midas digital console, you can throw it over the console and yourself, and so still see the screens.

Richard Ferriday, Brand Development Manager, Midas and Klark Teknik

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TECHNOLOGY FOCUS

Live products from Roland use REAC (Roland Ethernet Audio Communication) for low latency, high quality digital audio transfer. REAC offers many advantages, including multi-channel transfer with high quality audio, transferring 24-bit uncompressed multi channel audio with very low latency. REAC avoids typical analogue transfer problems such as signal quality degradation, hums and buzzes, and offers designers and integrators more freedom for cable placement as REAC transfer occurs over Cat5e cable and is immune to externally induced noise. The system uses pre-amps on stage to boost the input signal right next to the source, then converts it into a lossless, 24-bit digital signal that can be transferred without degradation, eliminating the need for direct boxes. By connecting a PC to the REAC split port on the back of the M-400 V-Mixer using a Cat5e cable users can take inputs and buses from and to the stage in their original digital format for up to 40 channels of recording.

www.roland.co.uk

Virtual Sound-Check

The recent explosion in popularity of MADI in live, broadcast, and studio applications can be attributed to a variety of practical, feature based and financial reasons. But a new technique that has grown from the format's bounty of versatility is the "Virtual Sound-Check".

By recording a band's first gig of the tour with every mic/line going down to individual tracks (up to 64 with MADI), you can then send the recorded channels back through your PA at the next sound-check and tweak EQ, FX etc. for as long as needed without the band being there. Paul Ramsay (FOH The Who, Skunk Anansie) was the first to introduce this to me and he uses an RME MADIFace (or two MADI PCI Cards with The Who), a Mac Powerbook, and DiGiCo console. This also allows you to record gigs for archiving and commercial purposes.

Dave West, Synthax Audio UK

Living Apart

Avoid mounting transmitters and receivers in the same rack.

Even though your IEM transmitter is on a different frequency than your wireless mic receiver, it may interfere with it because of its proximity.

The frequency of a wireless mic should be thought of as the 'tip' of a pyramid. If a transmitter's antennas are too close it will bleed into an unintentional receiver. Solution: use remote antennas and keep them separated.

Don Boomer – Wireless Sales Engineer, Line 6

Lavalier Or Earset?

Lavalier mics affix easily onto one's tie, shirt, or lapel, and many presenters are used to the process of fitting them. Unfortunately, a lavalier on the chest is far from the mouth and stays still when the head turns, often resulting in inadequate and inconsistent gain. For a presenter likely to be turning frequently (as in gesturing to a screen image), the lavaliere may not be ideal.

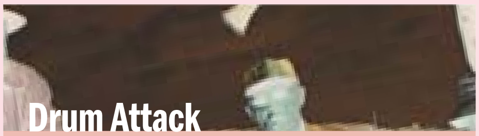
By contrast, earset mics sit right at the mouth, providing the highest gain-before-feedback. Though fitting on the ear takes more care than on the chest, positioning remains constant relative to the mouth—this enforces consistent level, even when the head turns. As high-quality earsets are small, unobtrusive, and can be purchased in colors that blend to skin tone, they are essentially invisible.

Omer Inan, Countryman Associates

Down To Earth

Some people have died, sometimes live on stage, because some idiot decided it would be a good idea to lift an earth to get rid of a mains hum loop. Disconnect the screen on the offending audio lead instead!

Andrew Graeme, The Byre Recording Studio and Audio Media Contributor



Drum Attack

Compressors' attack and release controls hold the key to the BIG drum sounds we're all now accustomed to hearing. Using these controls to shape the sound can create an illusion of power in your mix, rather than having to over-EQ and push things hard resulting in a loss of headroom.

Ben Hammond, FOH engineer, The Blackout. C/O Audio-Technica

POP Concert

When using a Midas digital console for mixing monitors, name the POPulation groups as the musicians. That way, you can have each musician's primary channels only one touch away.

Richard Ferriday, Brand Development Manager, Midas and Klark Teknik

A Gang Of EQ

In a festival situation or where microphones are being moved around a lot, gang the graphic equalisers across the front line stage mixes (using the digital console). This way, any problematic frequencies are dealt with simultaneously in one fire-fighting action!

Leon Phillips, Product Manager, Allen + Heath

Use, Don't Abuse

The tools we have at front of house are sweeteners, not a back line tech's 'get out of jail free' card.

Ben Hammond, FOH engineer, The Blackout. C/O Audio-Technica

Multi-Track Gigging

A stereo live mix can often sound disappointing outside the venue and potentially limits your options for making any necessary improvements.

Capturing a multi-track of the performance, with the instruments and voices on individual tracks, gives you much greater flexibility when it comes to the production stages, allowing the audio to be mixed for maximum impact without losing that live feel.

Recording the multi-track audio in a universal format such as Broadcast WAV has further advantages during the file import and mixing stages, as the files are time stamped and will automatically cue up, ensuring perfect synchronisation of tracks once imported into a DAW.

JoeCo

Face The Front

The main PA (on the Pyramid Stage at Glastonbury) was made up of two 16-deep hangs of Synco by Martin Audio each side of the stage, augmented by 35 Synco WS318X triple eighteen-inch sub-bass cabinets, with one rear-facing cabinet placed out of phase and precisely delayed between every pair of forward facing cabinets. This new cardioid sub-bass array design effectively cancels-out rearwards bass spill, sparing the stage and backstage from unwanted sub-bass while improving directionality.

Working The Festival Field, *Audio Media*, September 2009

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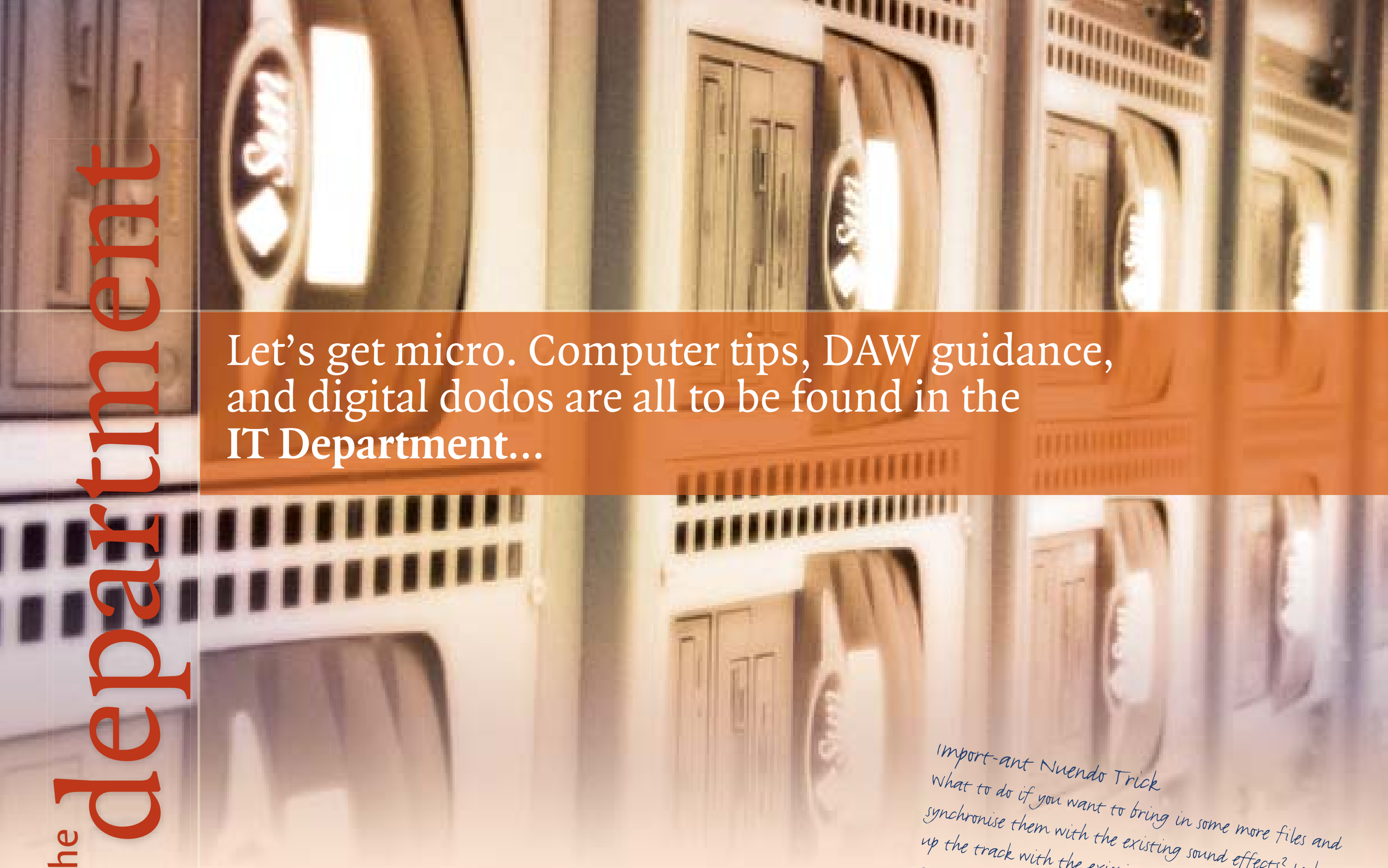


the it department

Let’s get micro. Computer tips, DAW guidance, and digital dodos are all to be found in the **IT Department…**

Nippy In Nuendo

Remember how you did all your editing on your MFX3 with a jog wheel and how fast that was? Nowadays it’s mostly hot-key smashing and mouse wiggling, but if you prefer to try out an alternative solution, combine Nuendo with a dedicated hardware controller, like the ones from Avid/Euphonix, WK Audio, or Smart AV. With these controllers you can set up so called “wheel modes”, which give you the ability to move (horizontally and vertically), trim (head & tail), and fade (in & out) an audio event. You can also zoom, select tracks, or adjust the clip volume. Set up some key commands for searching and importing files from the Nuendo MediaBay and you get your workflow back, completely without the restrictions those old systems had.

Sebastian Rodens, Sales Engineer, Steinberg

Simplify Your Automation

After a conform (either automatic or manual) consider thinning automation to reduce the number of breakpoints to repair. Virtual Katy’s method of copy and paste conforming means that breakpoints add up quickly and this allows them to be smoothed out, which will speed up your ‘fix’ process.

Ceri Thomas, Independent Sound Editor, c/o Virtual Katy

Route To Success

Use portforward.com to help troubleshoot router/firewall problems – almost every router is listed here with a guide. If your target application is not listed use the ‘default’ guide so determine how to go about port-forwarding your particular router. See the manual or guide for your software to know what port and type of port needs to be configured.

Source Elements

A Fuller Conform

Use clip name rather than video bin for conform analysis: As of version 3, VK Premium now allows analysis of clip name data. Once cleaned up using Regular Expressions this provides a very effective way of shot tracking across multiple versions of a reel. If a shot is replaced with VFX, even if that’s for lightening the picture, many conform programs lose track of it and won’t conform the existing material even though no sync has changed. This process stops that from happening and will give you a fuller conform.

Ceri Thomas, Independent Sound Editor, c/o Virtual Katy

Import-ant Nuendo Trick

What to do if you want to bring in some more files and synchronise them with the existing sound effects? Look up the track with the existing sound SFX, and create a new audio track at the same location (Project > Add Track > Audio). Import the files you want to align to the existing SFX, and select the sound file you want to synchronise to. Now hover with your mouse over the new file and hold “Command” on Mac OS X and “CTRL” on Windows. The mouse changes to the alignment tool, indicating how the file will be aligned. Position the mouse pointer to the head or the tail of the audio file to align to this event boundary. Press “SHIFT” with the modifier to align to the tail and “ALT” to make a copy. Set a snap point in the file to align to the snap point, unselect all events to align to the cursor.

Sebastian Rodens, Sales Engineer, Steinberg

Source Sync

When doing sync-related tasks such as using Remote Transport Sync with Source-Connect, if you seem to have timing issues create a new session. This fixes most timing issues. You should also watch your session start times. We recommend creating new sessions with a session start time of zero, song start time at bar one, note one, and avoid tempo maps where possible. If you need to use non-standard sample-rates, tempo maps or VSO sure these settings are exactly the same on the computer you are syncing with. Ideally create a session on one side with the settings you need and send it to the other computer so you match.

Source Elements

TECHNOLOGY FOCUS

Prism Sound's dScope Series III is a powerful digital audio analysis platform that couples a Windows application with an external audio interface processor for equipment-under-test connections. It is highly programmable, making it useful for production test automation and for specialised custom audio analysis. It can also be automated from a wide range of third party software using ActiveX controls

The dScope Series III is available in several configurations, including two analogue-only versions aimed at engineers and production line managers who are primarily concerned with audio analysis in the analogue domain. These variants give customers access to all the power and flexibility of the dScope Series III audio analyzer platform, at a much lower cost.

www.prismsound.com

A Sure Lock

Nehalem and newer Mac Pro machines often do not lock their digital output to the clock they are receiving on their digital input e.g., when going out of the optical port to your audio hardware. Use a third party audio card/device instead of going directly via optical. Any USB or Firewire interface with digital I/O will work well as a replacement.

Source Elements

iLok License Check

When launching iLok-protected software or plug-ins and you see the Buy or Quit screen, check that the correct version has been installed (see the iLok window and compare to the license name you have in your iLok.com account), that your valid license has been downloaded to your iLok and that the latest iLok drivers are installed.

Source Elements

Heal A Copy

Auto Heal a duped guide track: after a Virtual Katy auto-conform, try duping one of the guide tracks that you have conformed and healing across all edits. This will give a quick overview of the 'real' changes that need to be made. Note that auto healing across edit tracks can have unexpected effects that are tough to track down.

Ceri Thomas, Independent Sound Editor, c/o Virtual Katy

Installing With iLok (1)

If your Mac installer fails with a warning about 'InterLok component', go back and start the installer again until you can reach the Customise screen and uncheck 'install iLok extensions'. Then go ahead and download and install the driver extensions from iLok.com. You may need to do this because the software installer does not contain the most recent iLok drivers, or an existing issue has meant the software installer cannot complete. Using the iLok driver installer directly will resolve most related issues.

Source Elements

Budget For Back-Up

All hard drives fail eventually, so you cannot spend too much money on a reliable (and automated) back-up solution. I finally coughed up for Synology Diskstation at home and breathed a sigh of relief when it completed its first drive image...

Alex Theakston, Marketing Co-ordinator, Source Distribution

Installing With iLok (2)

If you use Windows and you buy an new iLok, make sure you run the 'found new hardware' wizard to see the iLok. Otherwise you may find that Windows cannot recognise this new dongle and your software will not launch. Make sure you restart (Windows) or logout (Mac OSX) after installing the iLok software for first time. The iLok drivers need to be initialised and this will only happen after a reboot or logout.

Source Elements

All-Control

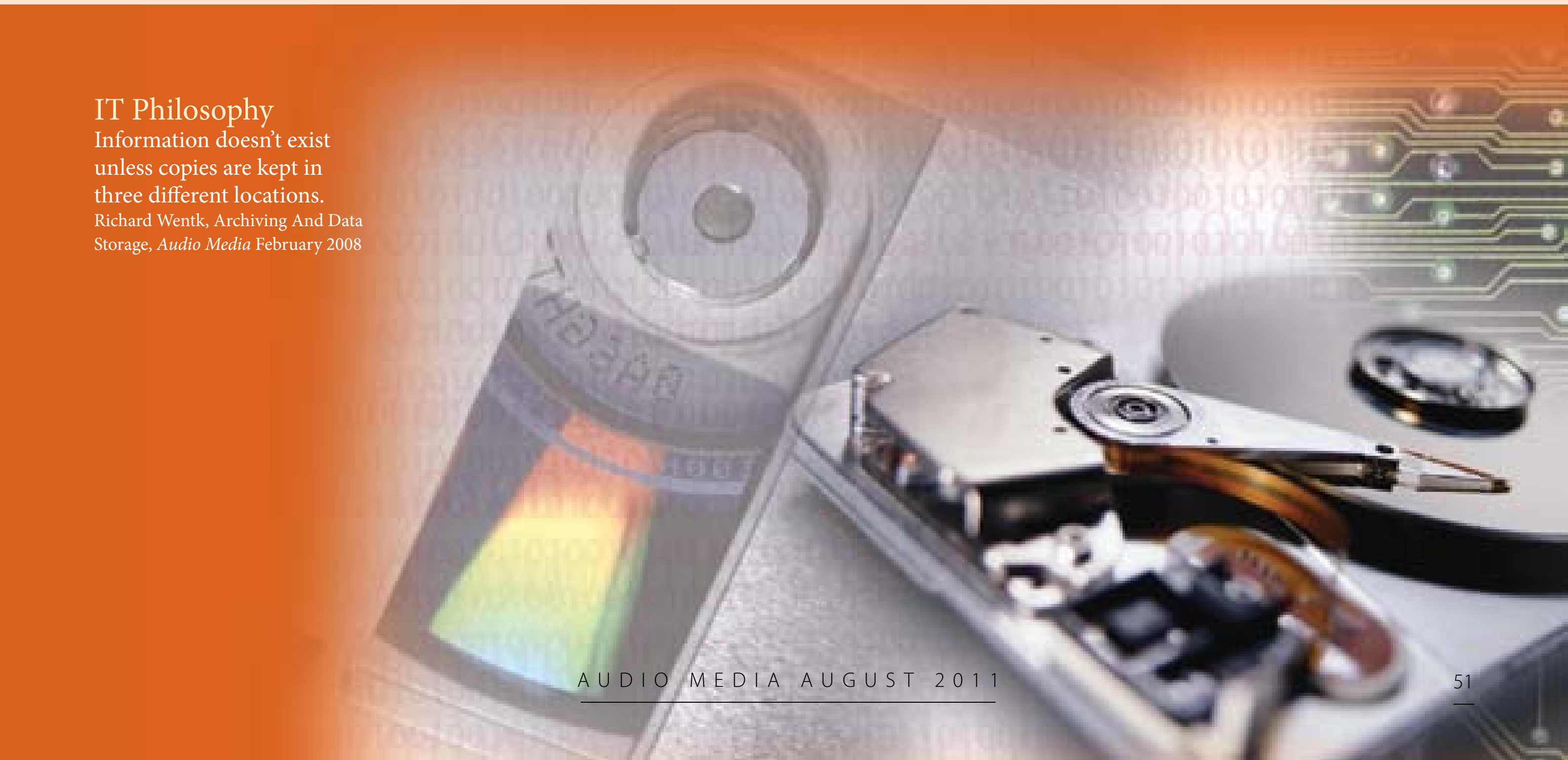
Synergy is a multi-platform application that allows a single keyboard and mouse to be shared across multiple computers on the same network. It is fairly difficult to configure the open source software, as it requires a self-made text-based configuration file and command-line execution. However there are free GUI equivalents available, such as 'SynergyKM' for Mac OS X, and 'QuickSynergy' for Windows and Linux.

Simon Haycock, HHB

FAQ: Propellor

If your installer fails with "Files could not be written in the Application Support folder", you may need to back-up your Propellerheads Software folder in Library/Application Support, run the installer, and move any files back again inside the folders. This may happen because the ReWire components are written with Admin permissions.

Source Elements



IT Philosophy

Information doesn't exist unless copies are kept in three different locations.

Richard Wentk, Archiving And Data Storage, *Audio Media* February 2008

The Early Bird

When resuming use of ISDN, Source-Connect or any remote audio connection after some time, always check your settings at least a day before your connection. Your network settings or audio routing may have changed since you last used the connection and it will save you a lot of stress to double-check as early as possible.

Source Elements

How To Tame A Bass Note

While many may think of the Sonnox SuprEsser as a de-esser, it's got a few other tricks up its sleeve. One of them is the ability to easily tame pesky bass notes that stick out in a mix.

Think about it; certain bass notes have extra energy at particular frequencies.

The SuprEsser, being a full-band dynamic EQ, will 'suppress' only that note when it plays and then immediately release it. The rest of the mix will not be affected.

On the graphic interface, begin by dragging the small yellow Central Filter Drag Handle to the frequency range of the note – visible on the graphic interface. Then adjust the left and right handles around that frequency as narrow or wide as you desire. Next, pull down the Threshold Level Fader to set the desired amount of reduction in that band. Result – a smooth bass line.

Your Friend, The Console

If your Mac installer fails and you are not sure why, open the Console application in Applications/Utilities, and select 'Show log list' at the top left. Scroll down to the 'install.log' under 'private/var/log' and you should see some messages there that will help indicate what the problem is. This is really useful information to send the manufacturer if you cannot resolve this issue yourself.

Source Elements

Two Become One

There are two episodes of a show that the editors wish to combine into one telefeature, reduce the length, and add new material.

1. The picture editor digitises the completed shows as two clips.
2. He edits the new show, adding new material from the original and using existing material from the re-digitised version.
3. He then outputs EDLs representing the video tracks.
4. The sound editor imports the EDLs into VK Premium Collection 3.0.
5. He then uses the "send edl to change plan bin" command or button.
6. He combines the two shows into one master session in Pro Tools or Nuendo
7. He clicks the Conform button.

The two shows are combined into one, and where there are holes, there is new material. I used this in an actual situation where they thought it would take two days to fix. Within an hour of starting we were smoothing out and integrating new material into a new final mix. It saved both time and money.

John McKay, Independent Sound Editor, c/o Virtual Katy

XY Control

If you don't own any bespoke controllers look at your current array of effects units, keyboards, drum machines, etc. The control surface of many of these devices are capable of sending MIDI data, and you won't have to spend additional money or take up precious studio space. Products with X/Y pads are great for controlling FX, and those capable of transmitting touch enable you to not only vary two parameters but also enable/disable the FX when the pad is touched. In a world of touch-controlled devices, this is becoming a very natural way of working.

Ian Bradshaw, Korg UK

iLok.com

When using iLok.com on Windows to install or modify your iLok licenses, make sure you use a browser that clearly prompts to enable the active-x component. Currently Internet Explorer is the easiest to use on Windows. Firefox 4 is not supported at the time of writing.

Source Elements

The Right Connection

When using remote network connection tools such as Source-Connect or ISDN and you can't hear anything, first check the connection indicator to see if you are getting a network connection. For example, in Source-Connect if your 'Receive' light is blinking it's an audio routing problem.

Source Elements

Enlightened Spotting

Video Guide Track:

When using an auto-conform program like Virtual Katy VK Premium, always conform the previous picture to allow for easy spot checking of shots. When doing this also be sure to take the video track 'offline' before conforming as this will speed up your conform.

Ceri Thomas,
Independent Sound Editor,
c/o Virtual Katy

Is Your Demo Down?

If your software isn't functioning properly when you have downloaded a trial, don't hesitate to contact the manufacturer (usually by e-mail). It is in their interest to have their products work for you and will help you troubleshoot any issues.

Source Elements

Future Proof

The following should help make sure your projects can be useful in the future...

- Consolidate and render all stems and tracks to single files as the 'bare metal' version of a project, which has the best chance of being read in the future.
- Use open cross-platform file formats like BWAVE.
- Define metadata and naming requirements for all projects in your facility. Make sure they're adhered to.
- Copy and archive to LTO tape, ideally with at least one extra safety copy kept offsite.
- Keep a watch on developments in future asset management technology – automated systems will make your content more valuable in the future.

Richard Wentk, Archiving And Data Storage, Audio Media February 2008

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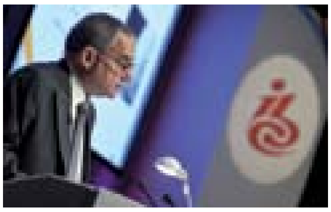
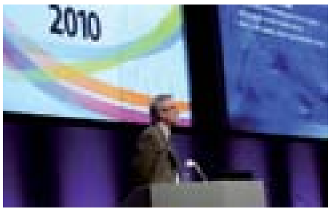
- Neelie Kroes, vice president responsible for the Digital Agenda, **European Commission**
- William H Roedy, former chairman and chief executive, **MTV International**
- John Smith, chief executive, **BBC Worldwide**
- Mainardo de Nardis, ceo, **OMD Worldwide**





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Slew Who Knew?

When you are testing or measuring Class-D amplifiers, you should use a passive switching amplifier measurement filter between the amplifier output and the measurement instrument to avoid slew rate limiting in the instrument input.

David Mathew, Audio Precision

Voltages In Decibels

Golden rule: For voltages every 6dB increase doubles the Vrms value, every 6dB decrease halves it.

Remember that 0dBV is 1Vrms. Remember also that 0dBu is close to 0.75Vrms (Trivia: this is the voltage required to dissipate 1mW into 600ohms and so from rearranging P = V^2 / R we get V = sqrt(600 * 0.001) = 0.7746….)

So, as a close approximation…

0bBV = 1Vrms
+6dBV = 2Vrms
+12dBV = 4Vrms
+18dBV = 8Vrms

0bBu = 0.75Vrms
+6dBu = 1.5Vrms
+12dBu = 3Vrms
+18dBu = 6Vrms

Mark James, Hardware Design Engineer, Prism Media Products

Trouble Halved

When troubleshooting a system, first divide it in half to find the fault. Then divide that half in half, and repeat, chasing the fault.

David Mathew, Audio Precision

Power Play

Check to see if the power cord is plugged in. I know, it's too basic: but I have solved major issues with major engineers in major studios simply by looking behind the machine to see about the power.

David Mathew, Audio Precision

Don't. Just Don't

Danger! High voltages! Always remove all your jewellery, rings and all, before you work on hot circuits. And always keep one hand behind your back – this prevents you from making an accidental flesh circuit across your beating heart.

David Mathew, Audio Precision

Jitter Mythology

It is a common myth that using a super-low jitter external master clock will improve the performance of your ADC/DAC. A well-engineered converter will perform as well with an external clock as with its low jitter internal clock. If it performs any differently at all when the clock source is changed, the converter is not behaving well, and, contrary to what most people believe, will almost certainly measure worse with the external clock (you will see/measure introduced intermodulation distortion products as the PLL fails to reject the incoming jitter).

Simon Woollard, Sales & Applications Engineer, Prism Sound

Noise-Free FFT

You can't 'see the noise floor' in an FFT measurement; in other words, you can't read noise directly from an FFT trace. Every data point needs to be added together (integrated) with post-processing tools to give you the total noise over the audible band. The noise amplitude of each FFT data point will vary as the FFT size increases or decreases, and the data points represent smaller or larger frequency ranges respectively. Be warned!

Simon Woollard, Sales & Applications Engineer, Prism Sound

THD + Ears

A THD+N measurement and a Frequency Response measurement will tell you almost all you need to know, quickly. Listening will tell you more, even faster.

David Mathew, Audio Precision

TECHNOLOGY FOCUS

The APx series is a high performance generation of audio analyzer from Audio Precision. Unlike other analyzers, APx has HDMI connectivity for Blu-ray and Dolby / DTS compliance testing, and is capable of 1MHz FFTs at 24-bit resolution.

The series includes the APx Bluetooth option, a solution for testing Bluetooth audio. A built-in Bluetooth module talks directly to the analyzer, bypassing the need for PC based software, hardware or SRCs. All Bluetooth controls are integrated into the analyzer software. In addition to standard commands like pairing or opening a connection, users can switch between profiles and roles, specify a custom device class, connect with a preferred sample rate or codec, or force open a SCO without ringing.

www.ap.com

Fuzz Box

'Distortion', 'Total Harmonic Distortion', and 'Total Harmonic Distortion + Noise' are often used synonymously, so be careful when interpreting data sheets. Distortion could mean IMD and/or THD components. THD and THD+N are different to one another, as THD+N includes noise, whereas THD excludes noise. Manufacturers please take note!

Simon Woollard, Sales & Applications Engineer, Prism Sound

Converting between units of % and dB in measurements like THD+N etc is quite straightforward; a factor of 10 in percentage terms is equal to 20dB. So:

0dB = 100%

-20dB = 10%

-40dB = 1%

-60dB = 0.1%, etc

Simon Woollard, Sales & Applications Engineer,

Prism Sound

Easy On Yourself

Do the really easy tests or fixes first, even if they don't make sense. Sometimes you'll get lucky, at very little cost of time.

David Mathew, Audio Precision

Innies And Outies

On an XLR connector remember that you wouldn't want to touch a mic input as this could destroy your loudspeakers! That is why outputs are on male/plug connectors, and inputs are on female/sockets.

Mark James, Prism Sound

Pro & Low

To get from dBV to dBu you just add 2.2, so for the studio/consumer level lineup...

-10dBV = -7.8dBu

+1.8dBV = +4dBu

So the difference between the two line-ups is approximately 12dB, whichever scale you look at!

Mark James, Prism Sound

Major Tom

Don't forget to make a solid ground connection between your device under test and your measurement instrument.

David Mathew, Audio Precision

Jitter Hitter

Jitter is not an audible parameter, and it only becomes problematic when it reaches a DAC or an ADC and the converter fails to remove the jitter prior to conversion; the result is intermodulation distortion. Extremely high levels of jitter can also cause data errors at digital receivers. Passing an AES3 signal down a cable CAUSES data jitter, so even a 'perfect' digital signal will be jittery by the time it reaches a receiver. Measuring jitter is useful for tracking down interface problems, but vanishingly low jitter is not the holy grail in all aspects of digital audio system design, as it is impossible to eliminate in AES3 interfaces. Jitter is therefore an extremely important consideration in converter design though!

Simon Woollard, Sales & Applications Engineer,

Prism Sound

Suspect Specs

It is very difficult to determine whether device A will sound better than device B on the basis of the manufacturer's data sheet alone. Lower noise, distortion, crosstalk, and frequency response irregularities, etc, are obviously better, but the chances are that, for example, a few dB of difference in THD+N at 1kHz will NOT be the dominant factor in terms of which device sounds better. There are many dimensions, and many more parameters, that manufacturers take into account at the design phase, but datasheets are usually very brief compared to the measurements made in the lab, and are generally not terribly useful for making comparisons between devices (not least as they are often measured under different conditions).

Simon Woollard, Sales & Applications Engineer,

Prism Sound

Testing, Testing

Remembering the pinout for XLR cables/connectors is as easy as 1, 2, 3:

1: X - Ground

2: L - Live (+)

3: R - Return (-)

Really easy, and pretty obvious if you already know it, but until I realised this I was always fumbling around for spec sheets when making up cables.

Simon Woollard, Product Specialist,
Test & Measurement, Prism Sound

win!

Each month, sE Electronics and *Audio Media* are giving away an sE 4400a microphone to one lucky subscriber. All you need is a subscription to *Audio Media* magazine (digital or print) – if you don't have one, complete this form or subscribe online at www.audiomedia.com. All new subscriptions will automatically be entered into that month's prize draw, and the winner drawn at random from our complete subscriber list, contacted by e-mail and announced in the following month's magazine.

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the lastpage

Conversions

1 metre = 3.281 feet
1 metre = 1.094 yards
1 centimetre = 0.394 inches
1 Kilometre = 0.621 miles
1 foot = 0.305 metres
1 yard = 0.914 metres
1 inch = 2.54 centimetres
1 mile = 1.609 kilometres

Distance/Delay (20°C)

20m	0.058s
30m	0.087s
40m	0.117s
50m	0.146s
60m	0.175s
70m	0.204s
80m	0.233s
90m	0.262s
100m	0.292s
120m	0.350s
140m	0.408s
160m	0.466s
180m	0.525s
200m	0.583s

Frequency/Wavelength

20Hz	17.15m
40Hz	8.575m
60Hz	5.717m
100Hz	3.43m
200Hz	1.715m
440HZ	0.78m
500Hz	0.686m
1kHz	0.343m
2kHz	0.172m
3kHz	0.114m
5kHz	0.069m
10kHz	0.034m
15kHz	0.023m
20kHz	0.017m

Wavelength (λ) and Frequency (f)

$c = f\lambda$
$f = c/\lambda$
$\lambda = c/f$

0dB SPL (Threshold of hearing) = 2×10^{-5}Pa

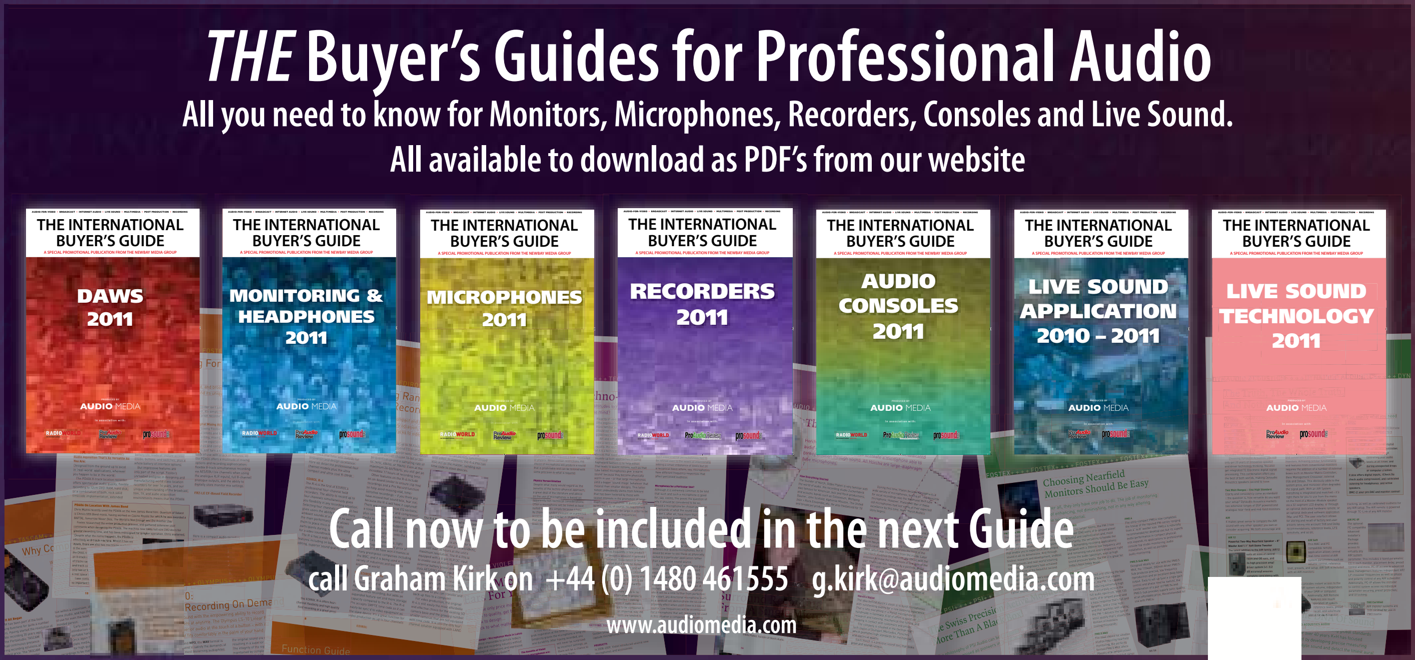
Resistor Colour Code

■ Black	0
■ Brown	1
🟥 Red	2
🟧 Orange	3
🟨 Yellow	4
🟩 Green	5
🟦 Blue	6
🟪 Violet	7
■ Grey	8
□ White	9

Speed of sound in air (c) at 20°C = 343m/s

Power (dB): $10\log_{10}(P_{out}/P_{in})$

Voltage (dB): $20\log_{10}(V_{out}/V_{in})$



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Jennifer Lopez, LL Cool J, Santana, Taylor Dayne

Nate Kunkel
John Mayer, Lyle Lovett, Lifehouse, Neil Diamond

Bil VornDick
Alison Krauss, Bela Fleck, Jerry Douglas, Doc Watson

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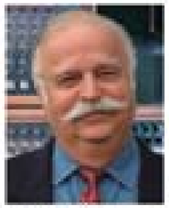

Bruce Swedien
Michael Jackson, Quincy Jones, Paul McCartney

Eddie Kramer
Led Zeppelin, Jimi Hendrix, Peter Frampton, Brian May

Mick Glossop
Van Morrison, Sinead O'Connor, Waterboys

Dave Rideau
Janet Jackson, Sting, TLC, Earth Wind and Fire

Recoil Stabilizers ...

RX5
RX7
RX9
RX12
RX17
RX20

These are not foam pads!

Regular foam pads solve one problem while introducing another. They isolate the speaker from resonating but allow the monitor to flop and sway. The energy that should be coming through the monitor is lost. With Recoil Stabilizers, a heavy 1/4" laser cut steel plate holds the loudspeaker firmly in place. No backwards recoil. Your monitors sound the way they are supposed to.

DF = Down Fire HF = Horizontal Fire UF = Up Fire

"I will never record another record without them!"

~ Bruce Swedien

YAMAHA
NS-10M STUDIO

RX9 DF

Recoil Stabilizers do more than simply isolate the nearfield monitor, they add a stabilizing mass. The results are astounding. Real, solid bass like your monitors were designed to deliver with improved transients and greater spatial detail.

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Ed Cherney
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Chuck Ainlay
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Joe Barresi
Tool, Queens of the Stone Age, Bad Religion, The Melvins

Ross Hogarth
John Mellencamp, Jewel, Keb' Mo', Jonas Brothers

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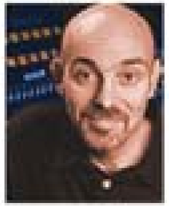
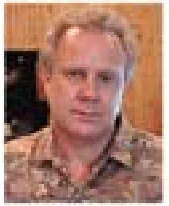


Donal Hodgson
Sting, Counting Crows, Tina Turner, Jeff Beck

Gary Paczosa
Alison Krauss, Yo-yo Ma, Dolly Parton, Dixie Chicks



Jay Baumgartner
Evanescence, Godsmack, POD, Papa Roach

Ryan Hewitt
Red Hot Chili Peppers, Tom Petty, Blink 182

Frank Filipetti
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